THE IRON AGE

New York, March 25, 1926

ESTABLISHED 1855 VOL. 117, No. 12

Martin Monoplane on Catapult on the Roof of a Turret of the U. S. S. Mississippi

The Navy and the Steel Industry

Ultra-Modern Fighting Units Call for Steel—Early Uses of Steel—Making First Steel Members for Naval Vessels

BY G. K. SPENCER*

GREAT changes have been brought about in naval warfare by the introduction of various aeronautical and chemical weapons. This renders it essential that all battleships be accompanied by light cruisers and submarines for primary operations, and by destroyer leaders for handling destroyers in the face of the new weapons. New construction desired is described by Admiral Charles Hughes, commander-in-chief of the battle fleet, as "vitally necessary, if we are to move successfully from our own shores in the event of hostilities."

Laymen in naval affairs are generally almost totally unaware of the widespread changes in tactics involved by the new weapons. A large ship can be blinded, unless adequately protected by an extensive force of cruisers, submarines and aircraft, through aerial and chemical operations. In recent tests a ship was bathed in chemical fog, while air forces "bombed" it to death, its gunners unable to see the foe.

The proposal is now openly broached that all United States merchantmen be equipped, in event of hostilities, with aircraft, catapults and aircraft personnel. These would be provided much after the system which we utilized in providing merchantmen with naval gun crews during the late war. This, again, involves the construction of a great reserve supply of catapults, which may speedily be mounted on merchantmen.

Immediate need is stressed for 22 new 10,000-ton light cruisers, 18 destroyer leaders, 23 large fleet high-seas submarines, at least one new aircraft carrier, four

*San Diego, Cal.

FROM the earliest steel ships, begun in 1883, to the present writing, about 2,185,000 tons of steel and iron—mostly steel—has gone into the construction of United States naval vessels. While this is, perhaps, one-fourth of 1 per cent of the enormous tonnage of rolled steel produced during the 43 years, yet its influence on the development of the steel industry has been out of all proportion to its tonnage.

The article here presented traces briefly some of the development features in which the Navy and American industry have gone hand in hand. It has been claimed that without this impetus of naval needs the American steel industry would not today be in the commanding position which it enjoys. This and two succeeding articles show why.

All-Metal Martin Plane for Use with a Submarine. This machine dives with the submarine. It is employed for scouting purposes

new squadrons of aircraft, an extensive number of catapults for delivering aircraft into the air, faster supply vessels—and 10,000 more personnel to handle the new units.

In solving these new and modern problems the element of armor plate is not a major, though an important, factor. Rather, the development of the gear already alluded to as necessary for the proper balancing of the fleet, and the evolving of armor-plated amphibious tanks for both water and land fighting, will assume the major importance. The Navy already possesses a small squadron of amphibious tanks, for purposes of landing, on enemy shores, forces from the fleets at sea. The day when lines of men might be landed from open boats has passed, as demonstrated in the debacle at Gallipoli, and in recent maneuvers of our own fleet. Industry will be requested to cooperate in the further evolution of heavy machinery of all types for the new construction, as well as for ordnance.

Studied movements of sea warfare of the past have given way to a furiously speedy movement. Smoke and gas and fog are liberated by aircraft and surface vessels, to shield any number of ships or aircraft or individual units. Colored fogs which simulate the color of the horizon obliterate all trace of the forces they protect. Highly specialized vessels are required, quickly and expeditiously to search out these feints and shelters. Forces unprepared to cope with this kind of fighting, even if they are extremely powerful potentially, can be destroyed piecemeal by much inferior forces, adequately prepared for these tactics.

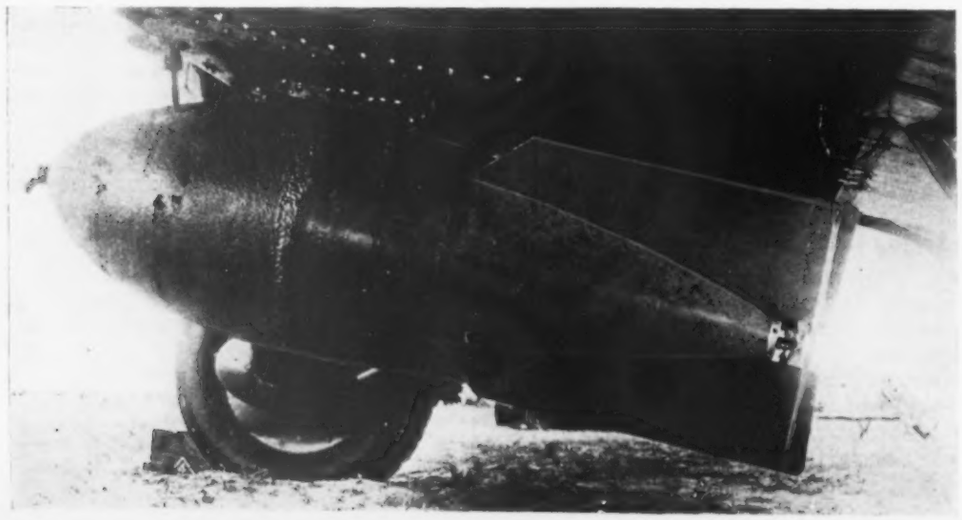
It is this subtle point which the naval chiefs are trying to indicate to the country and to Congress. Naturally, Congress lags in an understanding of these new aspects of war at sea, for the whole picture is so radically different from what it was even three years ago. To a considerable extent, the development of the light cruiser, the destroyer squadron leader and the aircraft—as well as the powerfully gunned scouting submarine, of which we have but three, is responsible for this change. And the United States has been left far behind, not because of naval reticence in bringing the facts before Congress, but because of the natural difficulty in bringing laymen to understand the problem.

Congressmen recently have been accompanying the fleet maneuvers and instruction has been given them in these new factors. The Henderson, a large naval transport, is used for this instruction, carrying to each naval maneuver a party of interested Congressmen, and members of the naval affairs committees of the House and of the Senate.

The Navy's Influence on the Steel Industry

The influence of the Navy on the development of the steel industry in the United States has been considerable. Steel plates were first used in this country for making an experimental firebox for a locomotive, at the Altoona shops of the Pennsylvania Railroad, in July, 1861. Not until 1865 was a second firebox made of this material. The difficulties in making plates from steel were great, as steel could be produced only by the crucible process. Problems in connection with making steel plates were, however, sufficiently solved, so that by 1880 such plates were being used more or less generally for locomotive boilers and fireboxes. As the product was still so uncertain that manufacturers would not accept orders for material conforming to specifications, the purchaser had to depend for quality on the general guarantee of the manufacturer.

In 1869 steel was used in the construction of the St. Louis bridge across the Mississippi River. Its use was considered such a bold piece of engineering that the experiment was not repeated until about 1879. Then Bessemer plates and shapes were adopted for the road-



Demolition Bomb Carried Under a Bombing Plane and Designed for Attacking Both Capital Ships and Land Fortifications

way, girders and approaches of the East River (Brooklyn) Suspension Bridge. The use of steel for shipbuilding had made practically no advance by that date, although one establishment, the Pusey & Jones Co., Wilmington, Del., had constructed five small river steamers and six lighters with steel plating, most of which was imported.

In 1881 Secretary of the Navy William H. Hunt appointed a board for recommending the design and construction of new vessels for the Navy. The work of this board marks the beginning of both the modern Navy and of the manufacture of steel as an industry in the United States. The board made an exhaustive report on the types of ships that should be built and also recommended that they be built of steel. In the latter respect the recommendation of the board was not unanimous. A minority report, by the more conservative element, was against the use of steel, as it was still considered a highly experimental material.

At that time, in the opinion of these members, steel of satisfactory quality could not be produced in the United States. Finally, however, the views of the majority prevailed, and four vessels built of steel of domestic manufacture were authorized by Congress. These vessels were the Atlanta, Boston, Chicago and Dolphin—the A, B, C, D of the "new Navy." The contract was placed with John Roach, Chester, Pa., on July 26, 1883.

At this point the real influence of this building program on the steel industry of the country begins, not because of the tonnage involved (about 10,000 tons of plates, shapes, forgings and castings), but because of the prescribed specifications as to quality. At first no steel manufacturer was willing to accept a contract to deliver steel in accordance with the Navy Department specifications. Finally, John Roach himself built a mill, to make certain of the material. The mills which supplied the steel were the Chester Rolling Mills, Chester, Pa.; Norway Iron & Steel Co., South Boston, Mass.; Park Brothers & Co., Philadelphia, for angles, tees and deck beams.

The difficulties which these mills experienced in producing steel complying with the specifications were enormous. Great pressure was brought to bear on the Navy Department to modify the requirements, but all such efforts were successfully resisted. Finally, material was produced which met the specifications and, what was of greater importance to the steel industry, manufacturers were taught how to make good steel. From that time on there was no question that the United States could produce steel as good as any abroad.

The Dolphin was completed in 1885, the first of the building program to be delivered. This vessel, after 36 years of service, was placed out of commission at the Boston Navy Yard in December, 1921, and was sold in 1922. No better testimonial to the quality of the material which entered into the construction of this vessel is needed than this long record of service.

Marines Landing Light Artillery from an Armored "Ark" Which Is Proof Against Machine-Gun Fire

Moving Picture Shows Fabrication of Steel Railroad Cars

The Bethlehem Steel Co. has gone to considerable expense in perfecting a moving picture on steel car manufacturing facilities at its Cambria plant, Johnstown, Pa. The film was shown Tuesday evening, March 9, at the Copley-Plaza Hotel, Boston, before the New England Railroad Club by George A. Richardson, manager technical publicity department. The first part of the film deals with the development of the railroad passenger car, from the time of the first steam locomotive, which is shown in motion, down to the modern type, covering a period of approximately 100 years. As the passenger car, from the production standpoint, is largely a specialty affair, the major portion of the film is devoted to mass production of freight cars.

At the time the film was made the Bethlehem Steel Co. was putting through a large Pennsylvania Railroad car order, and production was at the rate of one car each 15 min. in a 10-hr. day.

All work on parts is completed in such a manner, and departments are so arranged, that there is a continual flow of materials toward the central erection shop. The operation of a 27,000-lb. hammer forging steel center plates, and rolls for bending tank car plates were among the many mechanical features shown. Mr. Richardson said that the roll is the largest bending roll in existence. The top roll contains 73 tons of metal. The fabrication of underframes was filmed in detail.

Previous to his address and the film there was a short business meeting of the club. F. J. Carty, mechanical engineer Boston & Albany Railroad, was elected president and F. C. Sheperd, chief construction engineer Boston & Maine Railroad, vice-president. C. H. Sherburne, Boston, was re-elected treasurer of the organization and William E. Cade secretary.

Lower Bookings of Commercial Steel Castings

Bookings of commercial steel castings in February are reported by the United States Department of Commerce at 75,548 net tons, compared with 84,232 tons in January, and with 85,397 tons in December. With those two exceptions the February figure is the largest in more than a year and compares with 61,535 tons in February, 1925. The current operation represents 74.1 per cent of capacity, compared with 82.6 per cent in January. Production figures, which were given for the first time a month ago, show a slight gain. February output was 72,789 tons, or 71.4 per cent of capacity, against 72,016 tons in January, or 70.6 per cent of capacity.

Railroad specialties booked in February, at 31,401 tons, were at the lowest level since October, but were considerably above the average month of 1925. Miscellaneous castings in February, at 44,147 tons, were below the 46,555 tons of January, but otherwise were the highest for any month in more than a year. February bookings of railroad specialties were at 71.7 per cent of capacity, compared with 75.9 per cent for miscellaneous castings.

Delving Into Metal Structures

II.—Copper or "Corson" Alloys and the Effect of Varying the Chromic Acid Etching Re-agent—Grain Structures and Alloying Aggregations Revealed

BY J. R. VILELLA

THE etching properties of solutions of chromic acid containing small amounts of hydrochloric acid were discovered during the investigation of a series of copper alloys bearing silicides of nickel, cobalt, chromium or iron (Corson alloys). It was essential, for the purpose of this investigation, to reveal the grain structures of the ground masses as well as the state of aggregation of the alloying silicides.

The employment of solutions of chromic plus sulphuric acid gave rise to false etching figures that were mistaken for the true structures of the alloys, and led to quite erroneous conclusions (See Fig 14). Solutions of ammonia plus hydrogen peroxide were tried, but these failed to reveal the structures with sufficient sharpness and clearness of detail (See Fig. 15). Acidified ferric chloride solutions developed the grain structures comparatively well, but failed completely to reveal the presence of the finely divided particles of cobalt silicide (See Fig 16).

The first satisfactory results were obtained when

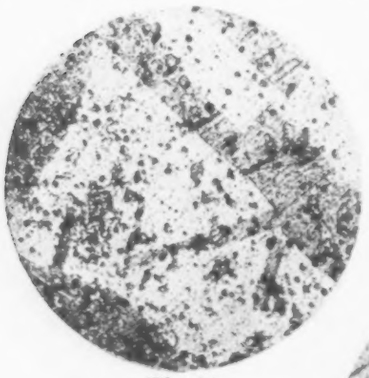


Fig. 14

Fig. 14.—*Structure of a copper-cobalt silicide alloy as revealed by chromic plus sulphuric acid. X* 100. *Fig.* 15. *Structure of the same specimen as Fig.* 14, *as revealed by ammonia plus hydrogen peroxide. X* 100. *Fig.* 16. —*Structure of the same specimen as Figs.* 14 *and* 15, *as revealed by acidified ferric chloride. X* 100

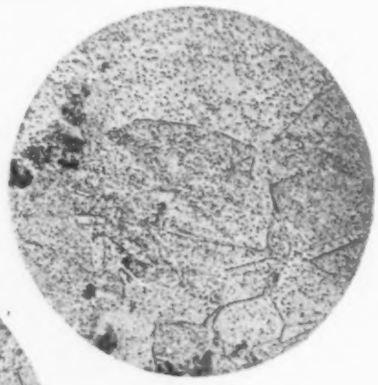


Fig. 15

Fig. 16

Fig. 17. — *Structure of the same alloy of Figs.* 14, 15 *and* 16, *etched with* 10 *per cent chromic acid plus hydrogen peroxide* (*Marchand's hydrogen peroxide*) *X* 100 *diameters*

Fig. 18. — *Structure of the same alloy shown in Figs.* 14 *to* 17, *etched with a* 10 *per cent solution of chromic acid containing two drops of hydrochloric acid to every* 50 *cc. of solution. X* 100

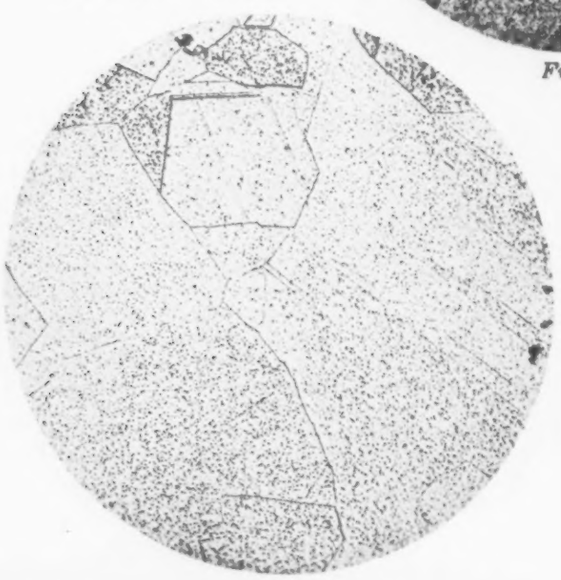


Fig. 17

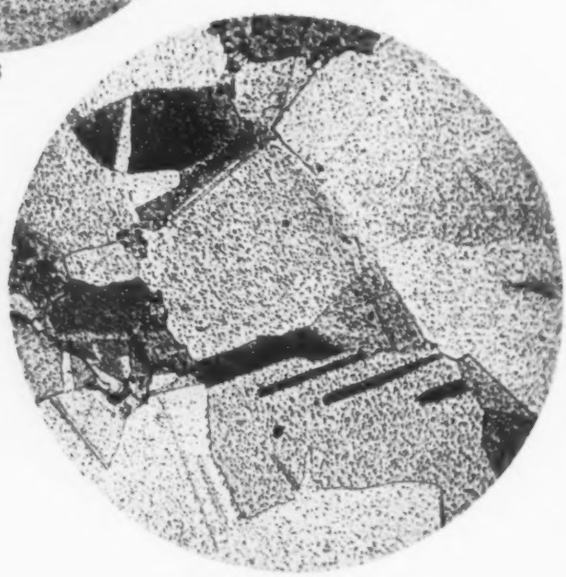


Fig. 18

Fig. 19

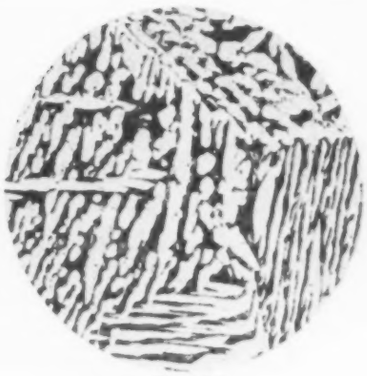


Fig. 20

Fig. 21

Fig. 19.—Tobin bronze, forged and annealed; etched with chromic plus hydrochloric acid for 8 sec. X 100. Fig. 20. — Copper-aluminum alloy, cast; etched for 8 sec. X 100

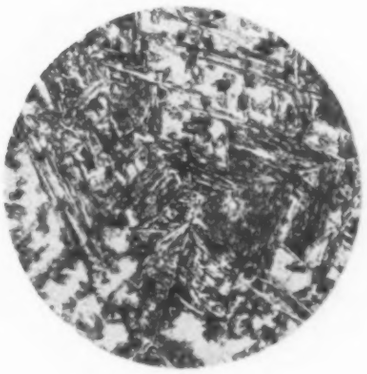


Fig. 22

Fig. 21. — Copper-aluminum-silicon alloy, etched for 8 sec. X 100. Fig. 22.—Muntz metal, forged and quenched; etched for 5 sec. X 100

the sections were etched with a 10 per cent solution of chromic acid to which hydrogen peroxide was added previously to immersing the specimen (Miller's reagent) (See Fig. 17).

The results obtained by the use of chromic acid plus hydrogen peroxide reagent continued to be satisfactory as long as the hydrogen peroxide employed was of certain brands (Marchand's or Eimer & Amend), but when the supply on hand of these brands was exhausted and Merck's U.S.P. product was employed, the reagent became totally inactive, failing even to wet the polished surface.

The etching action of this reagent has been attributed to the formation of nascent perchromic acid, but on this basis it was impossible to explain the inactivity of reagents prepared with Merck's hydrogen peroxide. On investigation it was found that the active brands contained appreciable amounts of hydrochloric acid, while the inactive one was free from this preservative. The essential rôle played by hydrochloric acid was finally established when a few drops of this acid added to the inactive peroxide restored the etching power of reagents prepared with it.

Further investigation showed hydrogen peroxide to be a totally unnecessary ingredient of the reagent, in fact, its presence is detrimental to the extent of preventing uniform etching. Several portions of a 10 per cent solution of chromic acid were further acidified with different amounts of hydrochloric acid and tested for their etching action. Those specimens, etched in solutions containing two or three drops of hydrochloric acid to every 50 cc. of chromic acid, exhibited structures superior by far in sharpness and clearness of details to any of the others.

An attempt to find the optimum concentrations of acids had to be given up as futile, chiefly because different alloys require different concentrations. Reagents prepared with solutions containing over 15 per cent chromic acid and more than 2 or 3 drops of concentrated hydrochloric acid were found to stain the sur-

THIS is the second in a series of three articles on new etching reagents and polishing methods, which bring out metal structures hitherto undeveloped. The first article, in THE IRON AGE *of March 18, dealt with aqua regia in glycerine and its effect on chrome-iron alloys. This week's article discusses the use of chromic acid plus hydrochloric acid as an etching medium for certain copper alloys.*

The author, who is a member of the technical staff of the Union Carbide & Carbon Research Laboratories, Inc., Long Island City, N. Y., was born in Porto Rico, was graduated from Pennsylvania State College in 1921 with the degree of bachelor of science in chemistry and, after serving as a second lieutenant of infantry during the World War, engaged in biological research for two years. Since then he has been a metallographer with his present company. He was co-author of an article on an improved method for polishing iron and steel, appearing in the Transactions of the American Society for Steel Treating, April, 1925.

J. R. VILELLA

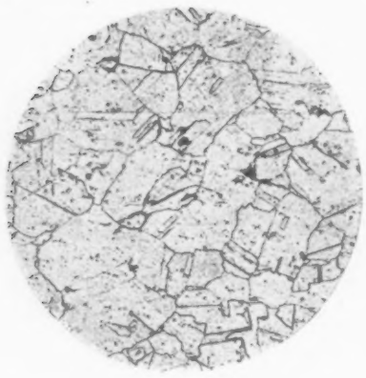


Fig. 23

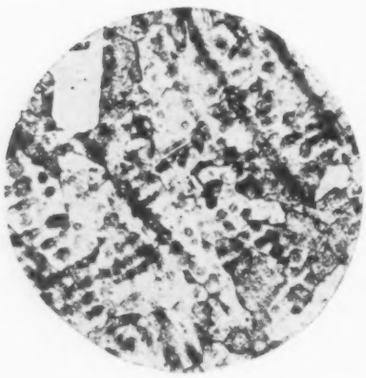


Fig. 24

Fig. 25

Fig. 23.—Structure of a forged and annealed 12:88 nickel-copper alloy; etched for 10 sec. X 100. Fig. 24.—Same section as Fig. 23, etched for 20 sec. X 100

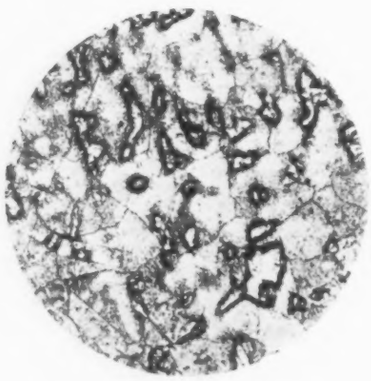


Fig. 26

Fig. 25.—Structure of a forged and annealed 8:92 aluminum-copper alloy, etched for 7 sec. X 100. Fig. 26.—Same section as Fig. 25, etched for 20 sec. X 100

face, while structures revealed by very weak reagents lacked contrast and sharpness.

Bronzes and brasses have been conveniently etched with 10 per cent chromic acid containing two drops of hydrochloric acid to every 50 cc. of solution, the length of the attack varying between 5 and 10 sec.

Alloys containing over 95 per cent copper, nickel-copper alloys and pure copper require longer attacks than bronzes or brasses. These metals are best etched by the method of alternate polishing and etching described in connection with the iron-chromium alloys (THE IRON AGE, March 18). Figs. 23 to 26 illustrate the ability of the reagent to register such chemical inhomogenity as is often met in forged and annealed alloys.

The action of this reagent, even when employed to etch pure copper, is selective to a great extent, that is, different grains are attacked or tarnished more deeply than others, depending on the orientation. This property is responsible for the sharp color contrast exhibited by the structures and constitutes one of the valuable features of the reagent.

When employed to etch alloys of more than one phase, its selective action is so marked that, unless great care is taken, one phase is apt to be deeply etched, resulting in a black and white appearance of the structures. In copper-tin alloys the alpha solution is not attacked, while the delta etches brown or black, depending upon the length of the attack. In zinc-copper alloys the beta solution is attacked, the alpha remaining unaffected.

Uneven staining of the etched surface often results from employing chromic anhydride contaminated with sulphuric acid and other impurities; for this reason the reagent should always be freshly prepared from chemically pure substances, and discarded as soon as the solution darkens or becomes turbid. Care should be taken to prevent contamination with alcohol or other substances which easily reduce chromic acid. To secure uniform etching the specimen should be kept moving in the solution and washed immediately in a current of hot water.

(The third and last article will deal with the effect of new etching reagents on aluminum alloys. Structures are brought out which have not been developed formerly and which throw considerable light on the properties and heat treatment of these alloys.)

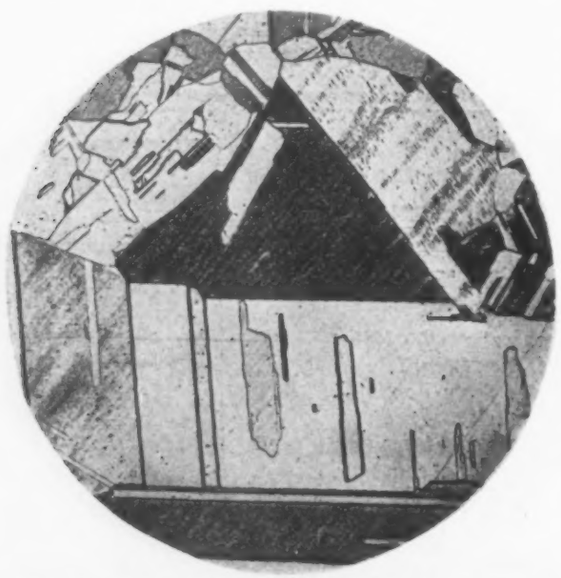


Fig. 27—Electrolytic copper rolled and annealed at 850 deg. C. for three hours. X 100

An unusually large crane shipment was recently made by Whiting Corporation, Harvey, Ill., which required 16 freight cars. It consisted of two electric traveling cranes, each crane having a main hoist of 200 tons capacity and an auxiliary hoist of 25 tons capacity for a span of 58 ft. and a vertical lift of 110 ft. The cranes were built for the New York Edison Co., New York, for the East River Station, designed by Thomas E. Murray, Inc.

Making New Metal Specifications

Ferrous and Non-Ferrous Committees of the American Society for Testing Materials Hold Spring Deliberations—Progress in Research Work

WITH a registration of over 325, and with over 70 sessions of various committees, the majority dealing with metals, the fifth group meeting of committees of the American Society for Testing Materials, held last week, was the largest of the kind. These gatherings, which started somewhat experimentally in 1924, are rapidly assuming the character of conventions. Representatives of consumers and producers from many quarters met at the Providence-Biltmore Hotel, Providence, R. I., March 17, 18 and 19. On each day there were simultaneous sessions of committees and sub-committees. Steel, non-ferrous and other specifications, and also research problems, were the chief subjects considered, the deliberations all being preparatory to the annual convention at Atlantic City in June. The earnestness and enthusiasm, as well as the large attendance at each committee meeting, were impressive. In the following account some of the chief topics and results of the deliberations are briefly touched on.

THE first group meeting of this nature was held in Washington, in 1924, with the second in Pittsburgh, the same year. The two meetings last year were in Philadelphia in March and in Cleveland in October. While the Providence gathering last week had the largest registration, the various group meetings can hardly be compared on this basis because the committees included have differed in various localities, depending upon the region and other conditions.

Specifications for Steel

The most important and interesting of the various sessions was that of committee A-1 on steel, the largest of any of the committees. The proportion of the total membership in attendance was large and it was presided over by its chairman, F. M. Waring, Pennsylvania Railroad, Altoona, Pa. The meeting was held in the large ballroom of the hotel, on Friday, March 19, the deliberations consisting mainly of reports from subcommittees which had held sessions on the two previous days.

Normalized Forging Steels

An important report was that of sub-committee VI on steel forgings and billets, presented by its chairman, H. P. Tiemann, Pittsburgh. At a largely attended meeting of this committee the day before, the discussion centered around three topics: High-tensile normalized steel, imperfections in billets and particularly axles with special reference to seams, (covering rejections recently because of small openings in test bars which have already passed specifications), and the investigation of the effect of the amount of reduction in rolling ingots into blooms.

The problem of specifications for high-tensile, normalized steel, such as carbon vanadium, nickel and manganese steels, was referred to a special sub-sub-committee, which is to draw up tentative specifications. The same disposition was made of the question of imperfections in forgings.

Rail Specifications

The report of sub-committee I on steel rails and accessories, of which E. F. Kenney, Bethlehem Steel Co., is chairman, was presented by J. B. Young, engineer of tests, the Reading Co., Reading, Pa. The principal recommendations of this committee were represented by revised specifications for open-hearth steel girder rails of the plain, grooved and guard type. These are the same as those of the American Railway Engineering Association, with a few minor changes. They are classed as tentative, subject to the usual letter ballot of the committee. The same action was taken regarding specifications for open-hearth, carbon steel rails, the specifications of the A. R. E. A. of 1925 being changed to conform to those of the A. S. T. M.

Steel for High Temperatures and Pressures

Considerable time was spent upon the report of subcommittee XXII, dealing with steel castings, pipe and fittings at high temperatures and pressures. This was presented by its chairman, V. T. Malcolm, metallurgist, Chapman Valve Mfg. Co., Indian Orchard, Mass. Two proposed tentative specifications were offered, one for forged or rolled pipe flanges and one for lap welded or seamless pipe for high-temperature service. These specifications were adopted by the full committee as tentative, subject to letter ballot. The proposal to advance to standard specifications those adopted last year, namely, A95-25T, covering steel castings for high-temperature service, and those designated as A96-25T covering bolts for use under the same conditions, after a few minor changes, met with considerable opposition. The bolt specifications were finally advanced to standard and those for steel castings were left in the tentative state.

The chairman announced that the committee by a unanimous vote had decided to formulate specifications for similar materials at 1000 deg. Fahr. and also by a close vote to formulate specifications covering temperatures as high as 1200 deg. Fahr. It was announced that L. W. Spring, chief chemist and metallurgist, the Crane Co., Chicago, had been elected chairman for the next two years, the retiring chairman being obliged to give up the work to which he has devoted so much time for a number of years.

Structural Tool and Bar Steels

The report of sub-committee II on structural steel for bridges, building and rolling stock, was presented by its chairman, A. W. Carpenter, New York Central Railroad, New York. The principal work of this committee has been the simplification of specifications for structural steel for locomotives and cars in order to coordinate them with those of the American Railway Association.

Sub-committee III on ship steel reported the formulation of tentative specifications for marine boiler steel which had been approved by letter ballot and which will be reported at the annual meeting in June.

The advancement of tentative specifications for tool steel to standard, covering both carbon and high-speed steels, was the main portion of the report of sub-committee XIV.

Two new tentative specifications were presented by J. J. Shuman, inspecting engineer, Jones & Laughlin Steel Corporation, Pittsburgh, chairman of sub-committee XV on commercial bar steels. These had to do with

commercial quality hot-rolled bar steel and with commercial cold-finished bar steels and cold-finished shafting. Subject to letter ballot of the full committee, the specifications were recommended as tentative, for adoption at the annual meeting in June, this being the usual procedure in all of the committee work of the society.

Sulphur and Phosphorus in Steel

The most important announcement, as a result of the meeting of the joint committee on the investigation of the effect of phosphorus and sulphur in steel, which was held March 17 under the chairmanship of Dr. G. K. Burgess, director Bureau of Standards, Washington, was that the studies on the effect of sulphur on rivet steel, which have been under investigation for several years, have been completed. They include chemical and physical tests of 14 heats with sulphur ranging from 0.03 to 0.18 per cent with an extensive metallographic study and the determination of endurance properties of the steel. A small committee was appointed to draft the discussion of these data and the conclusions for submission to the constituent bodies through the medium of the annual meeting of the society in June.

The committee on the investigation of the effect of sulphur on structural steel reported the completion of tests in this group, which includes six heats of mild structural steel, with sulphur ranging from 0.03 to 0.08 per cent. The investigation is still under way.

Substantial progress was reported by the committee investigating the effect of sulphur on forging steel, which includes seven heats, furnished in 1, 2 and 8-in. rounds. In the study of the effect of sulphur on wheel, tire and rail steels, a committee reported that a program has been formulated and that it is now awaiting production of the material under its specifications, covering six heats of steel with the sulphur contents the same as in the structural steel group. Progress was reported by the committee in charge of a study of the effect of sulphur on steel castings. Conferences are now being held with producers of steel castings through the American Foundrymen's Association and the Steel Founders' Society of America, both of which are represented on the joint committee.

Testing Thin Sheets

The large importance of uniform methods of testing thin sheet metals was recognized some little time ago by the society's committee E-1 on methods of testing, which resulted in the formation of a special committee to study this important problem. This committee, under the chairmanship of H. C. Knerr, consulting metallurgical engineer, Philadelphia, held a series of meetings last week, two of which took the form of open forums.

The committee has taken as its first problem the study of methods of tension testing of sheet metal and has included under this heading all material from a thickness of ¼ in. down to foil of approximately 0.010 in. Two lines of procedure have been followed: One consisting of a review of all tension test pieces of which knowledge could be secured by means of a questionnaire. This has resulted in a list of about 30 specimens of sheet material, both ferrous and non-ferrous. The second procedure involved the disregarding so far as possible the present very diversified practice and the approaching of the problem of a test specimen by the development of what might be called an "ideal" specimen. The comparison of this "ideal" specimen with those now in use has revealed the fact that seven of the latter are very close to the ideal, three are fairly close, with the remainder rather scattered.

Supplementing the foregoing study, the committee has planned a most extensive series of laboratory tests in which several of the leading test specimens are being carefully compared. Some of this work is well advanced, notably that being done by the Aluminum Co. of America on aluminum sheet and by the Bell Telephone Laboratories, Inc., on bronze sheet. Tests on sheet steel are about to be undertaken in the laboratory of the American Sheet & Tin Plate Co. and other co-operative tests are expected.

High Points in Accomplishments of Committees at Providence Meetings

HIGH-Tensile Normalized Forgings and Billets: A sub-sub-committee will report on their composition and heat treatment.

Imperfections in Forgings and Forging Billets: A sub-sub-committee will investigate some recent important developments in their inspection and rejection.

Non-Ferrous Alloys: New tentative specifications proposed for certain aluminum and other alloys for sand castings.

Metals at High Temperatures and Pressures: Further progress in present specifications and a decision to prepare specifications for temperatures as high as 1000 and 1200 deg. Fahr.

In General: Research progress in high-temperature properties of metals, in wrought iron, in corrosion of both ferrous and non-ferrous metals and other fields.

Temperature and Properties of Metals

The cooperating laboratories which are working under the direction of the committee having in charge the joint research on the effect of temperature on the properties of metals under the chairmanship of G. W. Saathoff, chief construction engineer, H. L. Doherty & Co., New York, reported that of the four classes of steel included in the original program one class has been heat treated and distributed to the four laboratories Two other classes are in the hands of their sponsors for similar disposition, and arrangements have been completed for the preparation of the fourth class of material. For the accumulation of service information concerning the success or failure of various metals in high-temperature service, a questionnaire is being prepared and will be distributed to various industries using metals under high-temperature service conditions.

Wrought Iron

In the realm of wrought iron, committee A-2 on wrought iron, H. J. Force, chemist and engineer of tests, Delaware, Lackawanna & Western Railroad, Scranton, Pa., chairman, took steps toward the inclusion in the specifications of rules for the double rolling of staybolt iron. It also recommended changing the name of merchant bar iron to common bar iron.

The work of this committee in research is being continued, particularly with reference to the benefits which may be bestowed upon wrought iron by annealing. This work was started a year or two ago and some interesting results have not only been obtained but are still in prospect. The microstructure of wrought iron is being investigated and also the question of the necessity of annealing chain at different periods during its prolonged use.

Non-Ferrous Metals

Considerable advancement in the work of committee B-2 on non-ferrous metals and alloys was recorded at its meeting last week. Its chairman is Dr. William Campbell, Columbia University. Besides the recom-

mendation of a revision of specifications for aluminum sheets, five new tentative specifications were presented. The first one covers aluminum base alloys in the ingot form for sand castings; the second, aluminum bronze for sand castings; the third, steam or valve bronze for sand castings; the fourth composition, or ounce metal for sand castings containing copper 85, tin 5, lead 5 and zinc 5 per cent; and the fifth, an 88-8-4 per cent metal containing copper, tin and zinc for sand castings.

As an appendix to the committee's annual report there will be a discussion and a list of the light aluminum base sand casting alloys, including their chemical composition and physical properties. There will also be added to the report a discussion of fluidity tests of bearing metals.

Corrosion Problems

In the important work which the society is doing in the study of corrosion phenomena, two important committees held well-attended sessions: Committee A-5 on corrosion of iron and steel, and committee B-3 on the corrosion of non-ferrous metals and alloys.

Corrosion of Iron and Steel

With J. H. Gibboney, chief chemist Norfolk & Western Railroad, Roanoke, Va., in the chair, an interesting summary was presented of the results thus far obtained in the total immersion tests under way at Annapolis, Washington and Key West. When completed these will not only give data regarding the serviceability of different classes of iron and steel when immersed in different waters, but are expected also to afford a comparison of the material in immersion service as against the results obtained in atmospheric exposures.

The results of tests of black sheets exposed to the atmosphere at Fort Sheridan, Ill., and Annapolis, Md., were reported with further failures recorded. Tentative specifications for galvanized sheets for various classes of service and for certain classes of wire and wire products have been developed and suggestions have been formulated as a basis for specifications for galvanized coatings for pipe.

Several accelerated methods for testing, particularly galvanized coated products, are being made in four different laboratories and they are intended to be used to parallel atmospheric exposure results. This is a preliminary study to select the preferable methods to apply in conjunction with and paralleling the elaborate program of exposure tests now getting under way.

Committee A-5 has active cooperative relationships with important corrosion investigations in progress under the guidance of other special technical organizations and it is sponsoring the formulation of specifications for zinc coatings as applied to a wide range of products.

Corrosion of Non-Ferrous Products

Under the chairmanship of the vice-chairman of the committee, Henry S. Rawdon, physicist Bureau of Standards, Washington, the committee B-3 on corrosion held a well-attended meeting Friday afternoon. Reports submitted from several sub-committees indicated that the program for total immersion tests was progressing rapidly and that several companies conducting certain phases of the work had completed the tests; that in the investigation of corrosion by intermittent immersion, the four laboratories doing this work have completed the investigation and that, in the effect of spray tests on the corrosion of non-ferrous metals, certain phases of the work had been completed, while others were still in progress. Those involving the effect of sodium chloride spray on the metals selected have been completed, while those using chromic acid, acetic acid and hydrochloric acid sprays were still in progress. The work has progressed so far, however, that a complete report on most of it will be presented at the annual meeting in June.

In the work involving accelerated electrolytic tests, some of these have been completed, some will be completed by June, with one worker making an earnest endeavor to finish by that time.

Simplification of Wire and Sheet Metal Gages to Be Investigated

Steps to determine the possibility of standardizing wire and sheet metal gages were taken at a conference held under the auspices of the American Engineering Standards Committee at the Engineering Societies Building, New York, March 18.

The conference followed a request of the Society of Automotive Engineers that the A. E. S. C. take up the unification of methods of designating the sizes of wire and the thickness of metal sheets and plates. It was presided over by C. E. Skinner, assistant director of engineering, Westinghouse Electric & Mfg. Co., East Pittsburgh, and chairman of the A. E. S. C. Following general discussion and vote on the question: "Shall the unification or simplification of the diverse systems for gaging wire and sheet metal be undertaken by a sectional committee," a temporary special committee on sponsorship and scope was appointed. The members of this committee were: F. J. White, Okonite Co., New York, and engineer of the American Electric Railway Association, chairman; F. H. Colvin, editor, *American Machinist*; Commodore A. B. Fry, superintendent of architect's office, United States Treasury Department, W. C. Wetherill, director of metals utilization, Department of Commerce; and Walter W. Lower, secretary of the National Association of Sheet and Tin Plate Manufacturers, Pittsburgh.

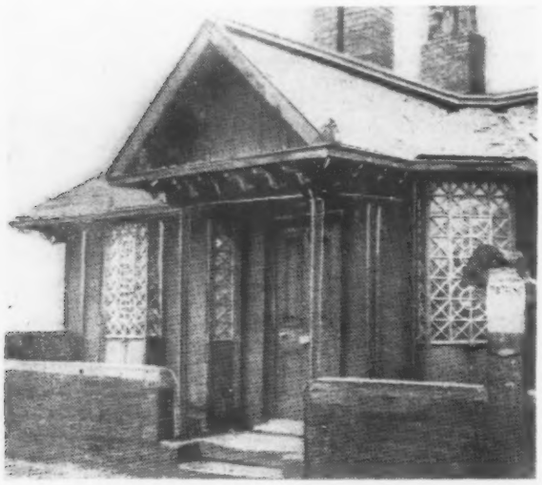
The scope adopted for the work of the sectional committee was as follows: "The standardization of a method of designating the diameter of metal and metal alloy wire, the thickness of metals and metal alloys in sheet, plate and strip form and wall thickness of tubing, piping and casing made of these materials; and the establishment of a standard series of nominal sizes and of tolerances for wires, sheets, plates and strips."

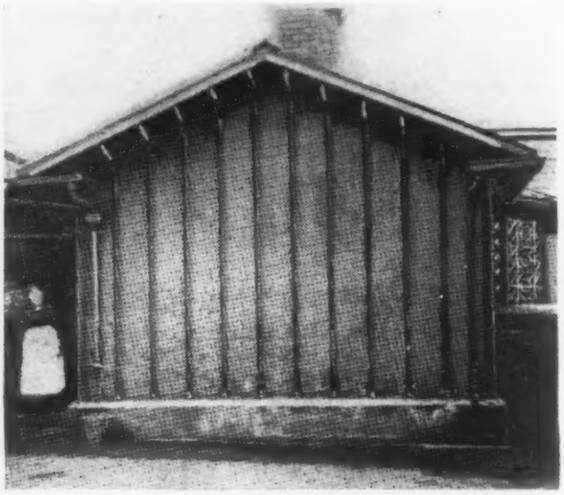
Joint sponsorship of the American Society of Mechanical Engineers and the Society of Automotive Engineers was also recommended by the committee. If these organizations accept sponsorship they will organize a sectional committee under the rules of the A. E. S. C.

Before the general discussion and vote to appoint the special temporary committee, a résumé of the present American practice, prepared by Col. E. C. Peck, Cleveland Twist Drill Co., Cleveland, was presented to the conference by John Gaillard, engineer of the A. E. S. C., who also presented a résumé of the European practice. In both of these papers, it was pointed out that at the present time there are some thirty different wire and sheet metal gage systems used in this country in which the same gage number often designates different actual sizes, thus causing confusion. From foreign standards issued in Great Britain, Germany, France, Switzerland and Japan, it appears that the tendency abroad is toward decimal designation of the sizes and the abolishment of the indication by gage numbers. A brief explanation of the preferred number system for the standardization of sizes was given by L. P. Alford, member of the sectional committee on preferred numbers appointed by the A. E. S. C., and consideration of this system was urged.

Among those present at the conference were C. H. Guy, Youngstown Sheet & Tube Co., representing the American Association of Steel Manufacturers; Walter Voigtlander, American Cable Co.; H. F. Smith and M. O. Kapperl, American Can Co.; L. T. Robinson, General Electric Co., representing the American Institute of Electrical Engineers; W. E. Mackley, American Steel & Wire Co.; C. S. Gordon and J. H. Gray, American Telephone & Telegraph Co.; H. W. Bearce, Bureau of Standards; E. W. Ely, assistant director of metals utilization, Department of Commerce; H. W. Acton, Institute of Tack and Nail Manufacturers; B. M. Leece, Leece-Neville Co., Cleveland, representing the Society of Automotive Engineers; T. C. Tweedie, MacWhyte Co., Kenosha, Wis.; R. Forester, National Association of Purchasing Agents; G. H. Gage, Postal Telegraph & Cable Co.; A. J. Morgan, John A. Roebling & Sons, representing the American Mining Conference; R. F. Burnett, manager of the standards department of the Society of Automotive Engineers; Captain W. D. Styer, United States Army, Corps of Engineers; T. Gore and R. G. Richmond, Waterbury Co.; and L. Dwight Granger, Wickwire Spencer Steel Corporation.

The iron house at Tilton, near Birmingham, England, which is still in excellent condition after more than a century and a quarter of use. Frame, walls, sash and door frames are all of iron. An air space provides insulation between the metal exterior and the interior plaster finish





The Dwellings of Tomorrow

IV.—Some Objections Often Raised to Use of Iron and Steel for Houses—With Answers Thereto

BY PRENTICE WINCHELL

"IRON and steel in houses will lessen the labor needed to erect our homes, you say. Well, won't the labor unions object to that and try to block it?" asked the Man from Missouri when the topic of conversation in the Pullman car took a new turn.

"They may," replied the ardent advocate of more iron and steel in houses. "Unions have done short-sighted things before. But no such interference can long stand in the way of increasing social and economic pressure. Probably there won't be any trouble at all; but if any does come, it will be merely inter-union squabbles, such as those which accompanied the introduction of steel sash and door frames not so long ago. That worked itself out without any difficulty. Iron-workers disputed the right of carpenters to hang steel sash or door bucks, but today both iron-workers and carpenters will be found doing this work and the use of steel for these purposes has increased steadily.

"Organized labor as a whole frowns on such inter-union disagreements and moreover has every reason to favor the increased use of iron and steel for dwellings. Whatever the building trades unions may think, the rest of union and non-union labor will not be long in learning that lower rents, smaller taxes, decreased insurance and better homes will result from the use of iron and steel in their homes.

"Transferring more of the work required in house construction from the field to the factory will take place gradually and will have little, if any, effect on wages and hours in the building trades. The labor cost of a house will be reduced, since comparatively cheap hand labor will be still further aided by machinery, some of it automatic.

"Building mechanics will doubtless learn to handle iron and steel construction units more easily than they learned to handle wood and more field work will be accomplished by each, when the use of such units becomes widespread."

"Hasn't the steel housing program in England been hampered by the labor unions?" injected the Gentleman from Missouri. "Might that not happen here?"

"It isn't likely," was the reply. "Conditions are quite different. Labor in England objects to several things which would not necessarily enter into the situation here. First of all, there is a good deal of question as to the type of house being erected in England; neither labor nor builders are entirely satisfied. Second, the shifting of a large amount of work from the building trades to the factories during a period of severe unemployment naturally causes more opposition than would be the case, if the change were made gradually or if there were enough jobs to take care of the men who would be thrown out of work. Third, there have been some indications that, since less skilled labor is required on the standardized types of houses called for in the English program than on wooden houses, wages might be reduced—a proposal which naturally meets with much opposition.

"No, the English situation is quite unlike ours. There they are trying to abolish the tenements and give employment to shop labor by erecting large numbers of dwellings exactly alike. In this country the emphasis has been placed on the development of unit parts adaptable to any house design or any owner's individual preference."

II

"How about rust?" asked the Gentleman from Missouri. "Won't steel and iron corrode so quickly that their usefulness will be greatly lessened on that account?"

"There are several answers to that question. One is that it is possible to make iron and steel which will not corrode readily. We have stainless irons and steels today, expensive as yet, of course, but then there are copper bearing steels, ingot iron and so on. Then of course it is possible to protect iron and steel so that they will resist corrosion far better than wood can resist the inevitable decay. Metals may be painted or

covered with a protective coating of some kind—galvanizing, for example—and experience has shown that if this coating is kept intact by periodic renewal, iron and steel are practically indestructible. Metals used in the frame, floor or walls of a house may be imbedded in cement-plaster, stucco or concrete and this acts as a protective covering against corrosion.

"We don't have to go as far back as the Black Pagoda of Konarak in India, although many of the iron beams used in that building are still in good condition. There is an iron house in Tipton, England, that is so old nobody can remember when it was erected. It is still inhabited and the tenants state it is the most comfortable house they have ever lived in—dry, warm and cosy in winter. The frame and walls of this house are iron, and the metal is in excellent condition today, simply because it has been properly painted from time to time. It is known that the house was built sometime before 1790, for the company which now owns it has records going back to that date and the house is not mentioned."

III

"Don't you suppose the idea of standardized construction is likely to militate against the introduction of iron and steel in dwellings?" continued the questioner. "There are a good many concerns selling ready-cut houses of various kinds, but the public as a whole has not taken very kindly to the plan—at least, only a small part of our annual building expenditure goes for such houses."

"I don't think standardized construction will enter into the matter," was the reply. "Practically all the experiments which have been made in this country have been based on the development of standardized units for construction, rather than in the direction of uniform design or duplicate dwellings. You know how the youngsters make all sorts of things out of the metal construction toys they get at Christmas? Same plan applied to housing, that's all."

IV

"It seems so revolutionary that I would expect to find something loose. To change the building habits of a nation and perhaps of a world, seems a large order . . ." the Gentleman from Missouri hesitated.

"It *is* a large order. But not so very much larger than changing the transportation habits of a nation. Not so much larger than changing the amusement habits of a hundred million people, after all. What the railroad, the automobile, the movies and radio have accomplished should be an indication that the building habits of a nation can be changed.

"Moreover, considerable headway has already been made. Steel and iron for housing are not precisely new. Nearly twenty years ago a steel frame house was built at Tuxedo, N. Y. Metal lumber has been made and sold for many years, though comparatively little has been used for small houses. Metal lath has increased in use tremendously of recent years and metal roofing is no innovation. The use of steel for frames, walls, partitions and so on will not come suddenly, but a very considerable beginning has been made. The next decade will probably see an increase in the use of steel for dwellings that will be quite comparable to the increase in the use of steel for large buildings."

Metal Lumber for Fireproof Floors

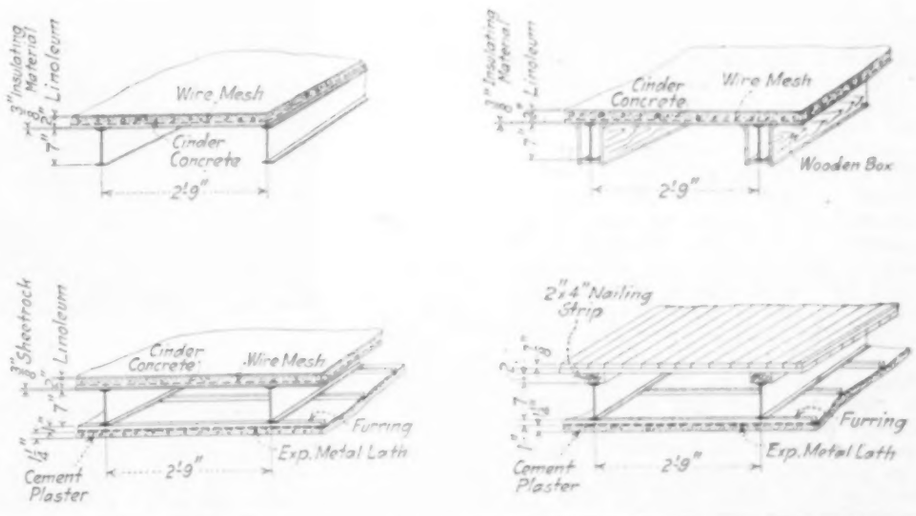
IN November, 1921, Thomas J. Foster, chairman, National Bridge Works, Long Island City, N. Y., addressed the American Iron and Steel Institute on the subject of metal lumber for buildings. "Steel lumber," he said, "consists of light structural members in the form of I-beams and channels of approximately one-third the weight of the standard sections of equal depth and primarily designed to fulfill the function of wooden joists and studs."*

The first steel joists were probably made about 1855 and some of them were used in the five-story bank building on William Street, near Wall Street, in New York. This building was erected in 1855 and razed in 1903 and the steel joists, of a somewhat different design from the steel lumber of today, were in excellent condition.**

About 1907 steel lumber joists were first made from sheet steel and since that time the use of sheet and strip steel for this purpose has steadily increased. Many million square feet of floors using metal lumber have been installed in the last ten years, but very little of this has been used for residential construction. With the rapidly growing interest in iron and steel for houses, the market for steel lumber will be increased because of its adaptability to fireproof floor construction when used in iron or steel frame dwellings.

"On the average," stated the National Pressed Steel Co., Massillon, Ohio, recently, "the cost closely parallels wood joist floor construction."

*THE IRON AGE, Nov. 24, 1921.
**Engineering News, Sept. 10, 1903.



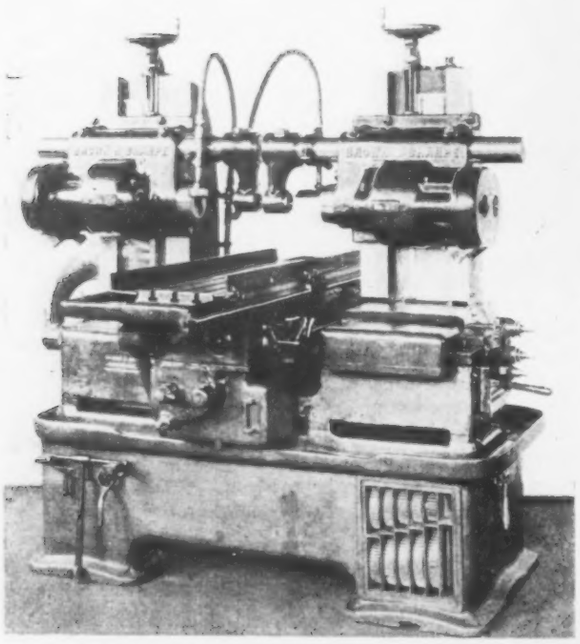
Typical Methods of Fire-Safe Floor Construction, Using Metal Lumber. Designed by T. J. Foster, chairman, National Bridge Works, Long Island City, N. Y.

High-Production Milling Machine

Full Automatic Table Control a Feature of New Duplex Machine—Design Permits Use of Wide Variety of Fixtures and Attachments

THE Brown & Sharpe Mfg. Co., Providence, has added to its line of automatic milling machines a two-spindle unit of the manufacturing type, which is designated as the No. 37 automatic duplex. Being of duplex type, its two uprights and opposed spindles permit the use of two face mills or of two gangs of cutters working simultaneously. The machine is especially adapted for face milling operations or, by using cutters on arbors, the piece can be milled both above and below at the same time.

The inside spindle rotates in one direction only, at a speed determined by the change gears used. The outside spindle runs either forward or reverse at a speed also controlled by change gears. Reversal of this spindle may be effected conveniently by means of a lever at the base of the head. On work requiring



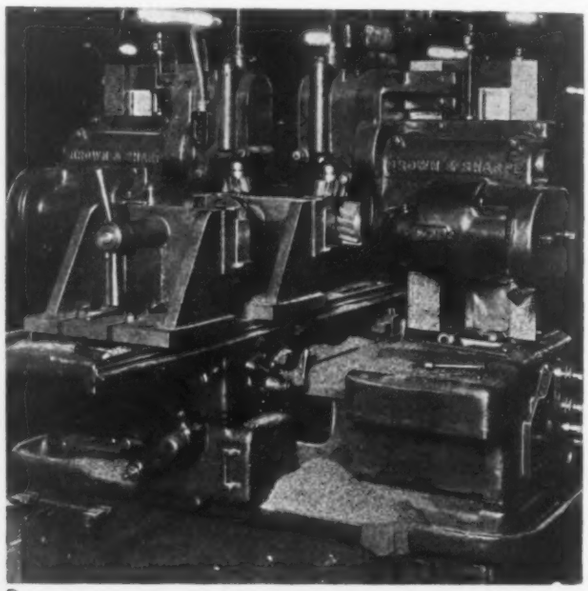
Being of Duplex Type, the Machine Permits the Use of Two Face Mills or of Two Gangs of Cutters Working Simultaneously

the use of only one spindle, the outside spindle can be set to remain stationary.

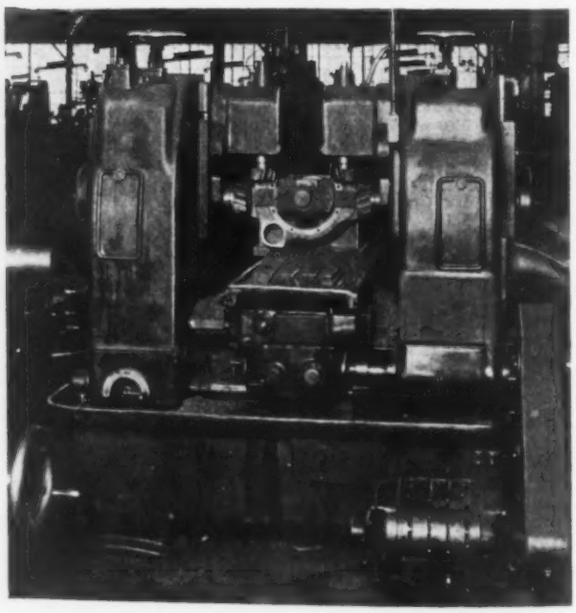
Full automatic table control is a feature. Both the fast travel and cutting feed of the table operate automatically in either direction, making the machine adaptable to the Brown & Sharpe method of milling with a fixture at each end of the table. This feature is stressed as an advantage also when part automatic operation is desirable. Accurate setting of the table may be made rapidly and the tripping levers are located for convenience in starting, this being of particular advantage when the operation is part automatic. The table is broad and rigid and the saddle heavy, which permits a wide variety of fixtures to be used. Such fixtures are designed to permit loading in minimum time, and in conjunction with the unusually rapid, constant fast travel, and the automatic operation permit the machine to cut almost constantly. The simplicity of operation and the adaptability of the machine to a broad field of work further fit it for manufacturing uses.

The machine is of the constant-speed drive type, with independent spindle and table drives. Speed changes for both spindle and table are accomplished independently of each other, thus giving a wide range of table feeds for any spindle speed and vice versa. It can be readily equipped with individual motor drive.

The spindle heads are mounted on uprights, which



A Variety of Fixtures and Attachments May Be Employed. The set-up above and that below show the use of two special fixtures and of two vertical spindle attachments



are located one on each side of the table, as shown. Each spindle is provided with independent vertical adjustment, and there is a separate set of change gears for each spindle. The upright which mounts the main spindle is cast as a part of the bed; the outside upright is adjustable and is provided with a transverse movement of 7⅝ in.

The automatic movement of the table, in either

direction, includes a constant fast travel, a variable cutting feed, reverse, and stop. Any or all of these movements may be used during a cycle of operations and may be operated automatically by adjustable dogs located on the front of the table. The start, stop and reverse movements of the table are also controlled by a hand lever at each end of the saddle. Another hand lever on the left of the saddle controls the cutting feed and constant fast travel.

Cycle of Table Operations May Be Full or Part Automatic or Intermittent

There are three fundamental cycles of table operation possible with the machine, full automatic, part automatic and intermittent. Many combinations of these cycles may be employed, the particular type depending on the nature of the work and the arrangement of the fixtures.

The full automatic cycle utilizes the "Brown & Sharpe method" of milling with a fixture at each end of the table, the work in one being milled while that in the other is being replaced. The cycle is repeated automatically as follows: The table advances at fast travel (210 in. per min.) to cutting position, cuts, reverses, advances at fast travel to cutting position for fixture at opposite end and cuts at this fixture while the work in first fixture is being reloaded. This cycle permits the greatest saving in non-cutting time, the operator simply reloading one fixture while the work is being milled in the other.

With the part automatic cycle a number of combinations of table movements are possible. If a single fixture is used at one end of the table, which may be necessary when cutting above and below simultaneously, the work is loaded, the fast table travel engaged, the table advances at fast travel, cuts and returns at fast travel to loading position, where it stops for reloading. If a swiveling fixture is used to save loading time, the operator can be loading one station of the fixture while the work in the other is being cut, the cycle being the same as for the single fixture noted above, except the table stops to permit indexing of fixtures in place of complete reloading.

The intermittent cycle may be used when two or more fixtures can be set up in line, having varying amounts of cutting feed and fast travel jumps between. The table reverses at the end of the last cut and returns to loading position at fast travel, where it stops. The pieces are removed as they come out from under the cutters, except the last piece, which is returned to loading position. The first fixture is then loaded before the operator trips the fast travel control to again repeat the cycle, the other fixtures being loaded as the cutting progresses.

In the above cycles, instead of returning the work past the cutters at fast travel, if desirable it can be returned at cutting feed until clear of the cutters before the fast return travel is automatically engaged. Also, in other than the full automatic cycle, the table can be set to stop for unloading before returning so that no finished work is passed back over the cutters.

Special Attachments Increase Range

In addition to the automatic features with its regular capacity for arbor or face milling, the general design of the machine permits the use of various special attachments. Multiple or angular heads or simple horizontal and vertical heads, similar to the one here illustrated, greatly increase the range of work which may be handled. Such special attachments, designed for particular needs, enable the machine to perform the particular work in the most efficient manner and still leave it available for handling other work requiring a different set-up.

The accompanying set-up illustration shows the use of special fixtures and attachments on the machine. This job called for the milling of the support seats of flywheel housings—six surfaces in four planes. The machine is fitted with two vertical spindle milling attachments—one on each machine head. The work is located in the fixtures by means of pins and is clamped by a single lever.

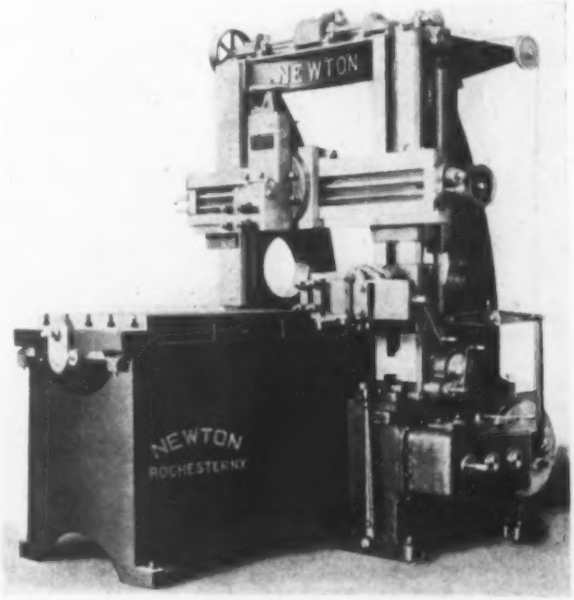
Two fixtures are located at one end of the table, as shown, the intermittent cycle being used as follows: The work in the first fixture is brought up to the cutters at fast travel and the cutting feed automatically engaged. When the cut is finished, the work in the second fixture is brought up to the cutters at fast table travel and cutting feed again engaged. During this cut the operator unloads the finished work in the first fixture, leaving it empty. When the cut on the second fixture is completed and the table reverses and returns at fast travel to the original loading position the operator has only to load the first fixture and engage the fast travel. While the first piece is being milled the work in the second fixture is replaced. It will be noted that with this cycle of operations the machine is cutting almost constantly, the only delay being the time necessary to load the first fixture.

It is said to be a simple matter to arrange the spindles of the machine to rotate in the correct cutting directions. The main spindle and its vertical attachment spindle rotate left-hand while the outside spindle and its vertical attachment spindle turn right-hand. As the distance from the surface milled by the vertical spindles to the lip left by the horizontal spindles is held to close limits, fine vertical adjustment is provided to allow for cutter wear.

Crank Planer with Side Head

A new side-head crank planer in two sizes, 34-in. and 39-in. stroke, respectively, has been developed by the Newton Works of the Consolidated Machine Tool Corporation of America, Rochester, N. Y.

In addition to the regular rail head the machine is equipped with an adjustable side head having both vertical power feed and hand adjustment. One of these heads can be fitted to each upright if desired, thereby reducing the operating time appreciably. It is stated that with one side head production can be materially increased. The side head may be lowered below top of table when desired. It has relief tool apron with double clamps, and may be swiveled 45 deg. either side of zero mark. It is counterbalanced to permit easy adjustment, by means of a counterweight carried to rear of the machine.



The Side Head Is Provided With Both Vertical Power Feed and Hand Adjustment. It may be lowered below the top of the table when desired

The table is of double-plate construction with five machined T-slots and is provided with chip pan at each end. An adjustment is available for positioning the

work while the machine is stroking, which is accomplished by means of an adjustment block and screw.

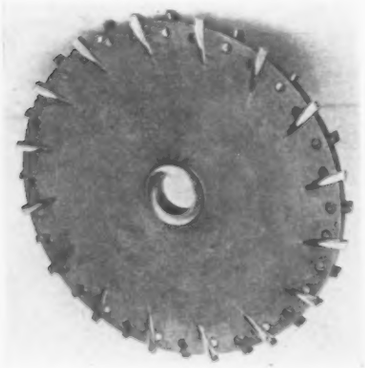
Six changes of speed are provided, through a gear box of sliding gear type, for changing number of table strokes. All gears are hardened, inclosed and run in oil. The table control is by means of clutch and brake, permitting "jogging" for tool setting, etc. This clutch may be locked to prevent starting of the machine and injury to the operator. The stroke adjustment is made from the operating side of the machine by means of a crank handle, with indicator showing the length of the stroke in inches.

The base of the machine is a one-piece casting of box type, with closed top, and providing two surface bearings for the table with side bearings and take-up gib. The uprights are of box section, and are bolted and doweled to the base and braced at the top by a deep sectional tie beam. The crossrail is adjusted by power through double lifting screws. It is of deep section and is gibbed to the uprights with provision for clamping. The tool slide in the vertical head is arranged for equal movement above and below the bottom of rail to reduce overhang to a minimum. This head may also be swiveled 45 deg. either way.

The machine is driven by a 10-hp. 1200 r.p.m. motor or by a single pulley through a change gear box, to a helical driving gear, the driving pinion being mounted between two bearings. All driving bearings are bushed; essential bearings with bronze.

Deep Slotting Cutter

The Lovejoy Tool Co., Inc., Springfield, Vt., is placing on the market the deep slotting cutter here illustrated, which is designated as the type F and is intended to cover the field between the ordinary metal cutting saw and the old solid type side mill. It is available in widths from ⅝ to 1⅛ in. and in diameters 6 in. and larger.



The Blades Are Held by a Positive Locking Arrangement. They have a slight side clearance, and a liberal length allowance for wear

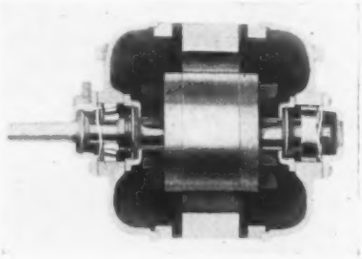
The blades of the cutter are held by the company's "positively-locking" arrangement, and have a slight side clearance, the angle at which the blades are set in the housing being somewhat dependent upon the cutting width of the mill. This side angle permits the maintaining of a definite width as the blades are adjusted outward, previous to grinding. The blades have a liberal length allowance for wear.

Motors with Automatic Rotor Re-Centering Bearings

Provision to assure a uniform air gap at all times is the feature of a line of motors recently placed upon the market by the Howell Electric Motors, Howell, Mich. The machines are equipped with anti-friction bearings and the arrangement is such that any looseness in the bearing is automatically taken up, keeping the rotor of the motor centered and providing uniform air gap. This is accomplished by the use of Timken tapered roller bearings, shimmed with a fluted wire spring which acts as a compression spring.

The inner race or cone of the Timken bearing is fitted on the shaft with a light press fit. The outer race or cup is fitted into the housing of the motor end bell with a sucking fit which allows creeping of the outer race. The spring is held tight against this outer cup by the outer grease cap; pushing the cup tightly against the rollers.

This type of bearing is put in each end of the motor. The spring is said to allow for lateral expansion of the shaft due to heating. The bearing is also said to run more quietly and does not need to be adjusted for wear or other looseness. They are arranged for grease lubrication and effective seals are used to keep the grease in and exclude foreign matter. These motors can be mounted in any position without changing the end bells. It is claimed that they will operate in vertical position as well as horizontal, as the bearings have a thrust capacity equal to their radial capacity.

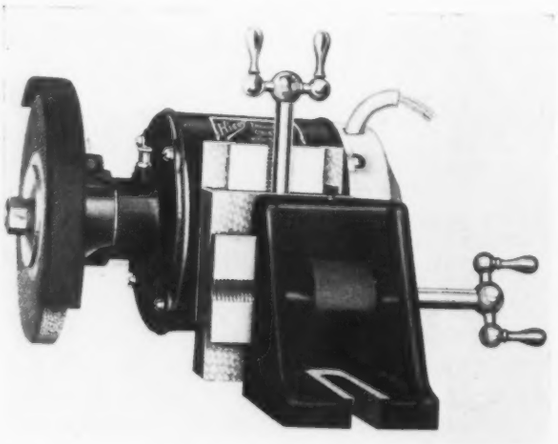


The Rotor of the Motor Is Kept Centered Automatically, Assuring Uniform Air Gap

Double-Slide Angle Plate Grinder

A double-slide angle plate grinder equipped with ball and sleeve bearings and arranged so that the slide travels verticaly 5½ in., and horizontally 4¾ in., is being placed on the market by the Hisey-Wolf Machine Co., Cincinnati. Both slides operate independently, which permits quick and accurate adjustment of the grinder to the work.

Single-phase, 110 and 220 volt, and three-phase, 220-volt alternating current machines are carried in stock, but grinders can be supplied for any voltage from 80 to 440, for any frequency, from 40 to 60 cycles, also for two-phase service. The motor is of ½-hp. capacity, and the no-load speed 3400 r.p.m. The weight is 68 lb. Direct-current machines for 115 and 230 volts are standard, but grinders for special voltage from 80 to 250 are available on order. Regular equipment includes wheel guard, electric cable fitted with attaching plug, operating switch and an 8 in. x ¾ in. grinding wheel.



The Slide Travel Vertically Is 5½ In. and Horizontally, 4¾ In.

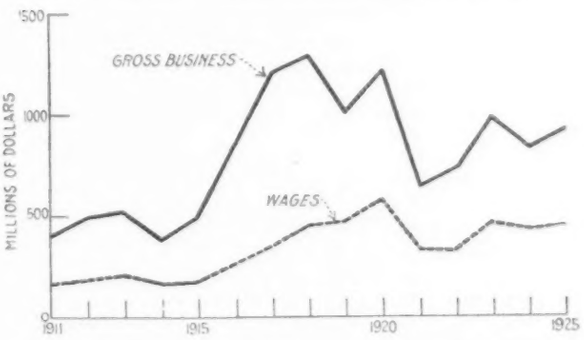
Standard specifications in Spanish, with facing pages in English, for low-carbon steel splice bars, (another in the series of translating the standards of the American Society for Testing Materials into the Spanish language), is now obtainable at 5c. a copy from the Superintendent of Documents, Government Printing Office, Washington.

$3.80 Less Per Ton Than in 1924

United States Steel Corporation's 1925 Annual Report Shows 78 Per Cent Operations Against 69 in Year Preceding—Earnings Indicate Operating Economies

SUBSIDIARY companies of the United States Steel Corporation engaged in production and marketing of iron and steel products operated during 1925 at an average of 78.4 per cent of their capacity, measured by the tonnage output of rolled and finished products for sale, according to the twenty-fourth annual report of the corporation, for the year ended Dec. 31, 1925. In the preceding year the corresponding average was 69 per cent.

"During the second quarter of the year there was a decided slackening in the demand for products, with considerable weakening in prices obtainable for several classes of the principal commodities," says the report. "As a result, while a substantial increased volume of business was done compared with 1924, measured by aggregate tonnage and value, yet, because of sharp competition, the average prices received per unit were less. In the case of rolled and finished steel products shipped to the domestic trade, the price received was $3.80 per ton less than in 1924, and in export shipments $4.38 per ton less. These average reductions in selling



Fifteen Years' Course of Gross Business and Wages of the United States Steel Corporation. In 1925 both items increased. Total business done with outside customers, while lower than in 1923, was considerably higher than in any other year since 1920. It was, of course, much higher than any pre-war years, because of increased unit prices

prices per ton, extended against the total tonnage shipped in 1925, represent an aggregate decrease in gross sales proceeds of approximately $51,500,000."

Average earnings per employee, including general administrative and selling forces, was $5.88 per day in 1925, compared with $5.85 in 1924 and with $5.83 in 1923. Production of rolled and finished steel products for sale shows an incresae in 1925 of 17.6 per cent over 1924, in place of the decrease of 20.4 per cent in 1924 as compared with 1923. Blast furnace production increased 16.7 per cent in 1925, compared with a decline of 24.2 per cent in 1924. Steel ingot production increased 14.7 per cent in 1925, compared with a decrease of 18.9 per cent in 1924. Production of cement increased 3.7 per cent in 1925 after having increased 5 per cent in 1924.

"Recession in the demand for products, which became apparent in the spring of 1925, continued until midsummer," says Judge Elbert H. Gary in his remarks to stockholders. "Then a substantial improvement developed which has continued to the date of writing this report. At Aug. 31, 1925, the tonnage of unfilled orders for all classes of steel products was 3,512,803 tons. By Dec. 31 this had risen to 5,033,364 tons, although shipments in the four months averaged about 77 per cent of capacity. At Feb. 28, 1926, the amount of unfilled orders was 4,616,822 tons. Bookings during January and February, 1926, were equal to nearly 80 per cent of capacity, while shipments were at approximately 90 per cent.

Volume of Business

"Total value of business transacted by all companies during 1925 amounted to $1,406,505,195, compared with a total of $1,263,711,469 in 1924. These amounts represent the gross value of the commercial transactions conducted by the several subsidiary companies. They include sales made between the subsidiary companies and the gross receipts of the transportation companies for services rendered to subsidiary companies and to the public. Earnings for the year, resulting from this gross business, are shown in the accompanying statement." (Table I.)

Employees and Payrolls

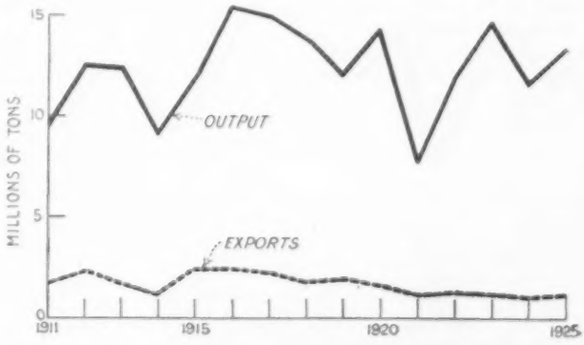
No general changes were made in wage rates during 1925. The average number of employees increased slightly. The statement of numbers and earnings of employees follows:

Table II.—Employees and Their Compensation

Employees of	1925 Number	1924 Number
Manufacturing properties.	179,040	177,078
Coal and coke properties..	25,920	26,054
Iron ore properties.....	14,305	15,022
Transportation properties.	25,596	24,264
Miscellaneous properties..	4,972	4,335
Total	249,833	246,753
Total wages and salaries	$456,740,355	$442,458,577
Average per man.....	1,828	1,793
Average Earnings per Employee per Day for Year:		
All employees, exclusive of general administrative and selling force.....	$5.77	$5.74
Total employees, including general administrative and selling force.....	5.88	5.85

Capital Expenditures

Expenditures made by the corporation and by the subsidiary companies during 1925 for additional property, new plants, extensions and improvements amounted to $77,875,832. After deducting credits for sales



Fifteen Years' Course of Tonnage Output and Exports of the United States Steel Corporation. In 1925 both items increased. The output of rolled and finished products, making up half of the 1924 loss, stood at about the average of the past 10 years

of property and salvage, the net sum was $70,893,944. This compares with $79,619,986 in 1924, reduced by $8,529,929 written off to depreciation and replacement reserves to cover investment cost of improvements and equipment retired, leaving a net addition in 1924 of $71,090,057. The principal item of credit for retirement in 1925 was $6,078,090, "for amount received

Table I.—Gross Sales and Miscellaneous Earnings

	1925	1924	Increase
Gross sales by manufacturing, iron ore and coal and coke companies:			
To customers outside of United States Steel organization	$928,150,726	$842,969,442	$85,181,284
Inter-company sales (sales between subsidiary companies)	348,062,804	311,092,562	36,970,242
	$1,276,213,530	$1,154,062,004	$122,151,526
Gross earnings and receipts of transportation and miscellaneous companies:			
Transportation companies	101,155,127	87,225,690	13,929,437
Miscellaneous companies	29,136,538	22,423,775	6,712,763
Total	$1,406,505,195	$1,263,711,469	$142,793,726

from salvage value and in sales price of Shoenberger plant and property, Pittsburgh."

It is pointed out that the year's capital expenditures, while including some notable extension in capacity in the Southern and Western districts, where the demand for steel products has been constantly increasing, yet were incurred largely in rebuilding and in substitution of plants and facilities which had worn out or had become inefficient because of type or location and could no longer be operated economically or profitably. In addition to the Shoenberger plant, the following plants were abandoned and dismantled:

Table III.—Classification of Capital Expenditures

For manufacturing properties	$60,455,967
For by-product coke plants	3,181,881
For coal properties	3,777,839
For iron ore properties, including additional net investment in mine stripping and development	3,383,562
For railroads and lake docks	4,711,977
For ocean, Great Lakes and river transportation service	1,261,759
For limestone, fluorspar, gas and water properties	1,102,847
Total	$77,875,832
Credit: For amount received from Shoenberger plant and property	*6,078,090*
For land companies—housing facilities for employees net credit arising from sales of houses and property in excess of expenditures made for additions	*903,798*
Total	$70,893,944

Disposal of Obsolete Plants

Blast furnaces at Niles, Steubenville, Mingo and Newburgh, Ohio (four furnaces); Painter Works and Clark Works in Pittsburgh; works at Monessen, Pa.; Sharon, Pa., and Columbus, Ohio; tube plant at Syracuse, N. Y.; structural bridge plants at Edge Moor, Del., and at Detroit; a portion of the Shiffler structural plant at Pittsburgh. At the Homestead Works of the Carnegie Steel Co., three blooming mills, 33-in., 38-in. and 40-in., were dismantled, being replaced by a new 44-in. blooming mill.

Reduction in annual productive capacity, arising from these disposals and abandonments, was 614,000 tons of pig iron, 614,000 tons of ingots, 538,000 tons of blooms, billets and sheet bars, and 355,000 tons of finished rolled products. This capacity to a considerable extent has been, as to its potential character, diminishing during recent years as additions and improvements at other plants have been made in anticipation of these abandonments. Investment costs in the properties abandoned, other than the real estate, have been fully charged off against depreciation reserves accrued during the life of the plant. Under prevailing price indexes for labor, material, equipment, etc., and modern standards of construction, the investment cost for replacing an equal productive capacity to that discarded totals from two to four times the investment cost of the old. In short, as producing capacity has to be replaced from time to time a very much greater capital investment is required.

Miscellaneous

Employees' Stock Subscriptions:—Employees of the corporation and of the subsidiary companies were in January, 1926, offered the privilege of subscribing for shares of common stock of the United States Steel Corporation at $136 per share, all other conditions and terms being substantially the same as those under which similar offerings have been made in previous years. To this writing subscriptions have been received from 37,244 employees for a total of 74,351 shares. At Dec. 31, 1925, there were 47,647 employees who were registered stockholders, holding an aggregate of 163,802 shares of preferred stock and 501,999 shares of common stock. There were also 6327 additional employees who had in force open subscription accounts covering purchase of stock, but were not registered holders of shares.

Profit Sharing Plan:—In accordance with the profit sharing plan adopted by the stockholders in 1921, appropriation was made from the earnings of 1925 of a fund for distribution under such plan. The allotment and distribution were made in February, 1926, by the profit sharing committee of stockholders elected at the annual stockholders' meeting in April, 1925. Of the awards made by the committee, 60 per cent was paid in cash and the remainder covered by certificates of conditional interest in shares of common stock of the

Table IV.—Foreign and Domestic Shipments and Business

Shipments of all classes of products in comparison with shipments during the preceding year were as follows:

Domestic Shipments	1925 Tons	1924 Tons	Increase or Decrease—Tons	Per Cent
Rolled and finished steel products	12,340,010	10,493,102	1,846,908	17.60 Inc.
Pig iron, ingots, ferroalloys and scrap	213,479	271,418	57,939	21.35 Dec.
Coal, coke and iron ore	761,676	289,561	472,115	163.05 Inc.
Sundry materials and by-products	124,019	118,681	5,338	4.50 Inc.
Total tons all kinds of materials, except cement	13,439,184	11,172,762	2,266,422	20.29 Inc.
Universal Portland cement (bbl.)	14,753,487	14,941,143	187,656	1.26 Dec.
Export Shipments				
Rolled and finished steel products	1,048,836	1,033,788	15,048	1.46 Inc.
Pig iron, ferroalloys and scrap	4,970	3,089	1,881	60.89 Inc.
Sundry materials and by-products	130,562	115,141	15,421	13.39 Inc.
Total tons all kinds of materials	1,184,368	1,152,018	32,350	2.81 Inc.
Aggregate tonnage of rolled and finished steel products shipped to both domestic and export trade	13,388,846	11,526,890	1,861,956	16.15 Inc.

Total value of business (covering all of above shipments, including cement, completed cars, ships, barges and car floats delivered and other business not measured by the ton unit).

	1925	1924	Increase—Amount	Per Cent
Domestic (not including inter-company sales)	$847,089,777	$763,251,221	$83,838,556	10.98
Export	81,060,949	79,718,221	1,342,728	1.68
Total	$928,150,726	$842,969,442	$85,181,284	10.10

Table V.—Comparative Income Account for the Fiscal Years Ended Dec. 31, 1925 and 1924

	1925	1924	+ Increase — Decrease
Earnings—Before charging interest on bonds and mortgages of subsidiary companies:			
First quarter	$41,849,764.09	$52,129,738.62	— $10,279,974.53
Second quarter	42,634,705.17	43,407,005.15	— 772,299.98
Third quarter	44,523,558.12	32,715,060.16	+ 11,808,497.96
Fourth quarter	44,775,397.22	32,931,664.06	+ 11,843,733.16
Total for year	$173,783,424.60	*$161,183,467.99	+ $12,599,956.61
Less, interest on outstanding bonds and mortgages of subsidiary companies	8,244,959.93	8,068,656.07	+ 176,303.86
Balance of earnings	$165,538,464.67	$153,114,811.92	+ $12,423,652.75
Less, charges and allowances for depletion and depreciation applied as follows: viz.:			
To depreciation and replacement reserves and sinking funds on bonds of subsidiary companies	45,463,053.99	38,687,668.14	+ 6,775,385.85
To sinking funds on United States Steel Corporation bonds	10,623,625.44	10,205,168.92	+ 418,456.52
Net income in the year	$109,451,785.24	$104,221,974.86	+ $5,229,810.38
Deduct:			
Interest on United States Steel Corporation bonds outstanding	17,761,388.75	18,274,207.49	— 512,818.74
Premium on bonds redeemed and acquired for sinking fund, viz.:			
On subsidiary companies' bonds	222,329.77	182,350.09	+ 39,979.68
On United States Steel Corporation bonds	880,439.61	785,295.44	+ 95,144.17
Balance	$90,587,627.11	$84,980,121.84	+ $5,607,505.27
Add: Net balance of sundry receipts and charges, including adjustments of various accounts	15,025.78	87,069.77	— 72,043.99
Dividends on United States Steel Corporation stocks, viz.:	$90,602,652.89	$85,067,191.61	+ $5,535,461.28
Preferred, 7 per cent	25,219,677.00	25,219,677.00	.....
Common, regular 5 per cent, extra 2 per cent	35,581,175.00	35,581,175.00	.....
Surplus net income	$29,801,800.89	$24,266,339.61	+ $5,535,461.28
Less, sums appropriated and expended or to be expended account of additions, improvements or betterments to plants and property	25,000,000.00	20,000,000.00	+ 5,000,000.00
Balance carried forward to undivided surplus	$4,801,800.89	$4,266,339.61	+ $535,461.28

*Balance of earnings after making allowances for estimated amount of Federal income taxes

Table VI.—Production for Three Years

Products	1925 Tons	1924 Tons	1923 Tons	1925 Increase Over 1924 Tons	1925 Increase Over 1924 Per Cent
Ores Mined—					
In the Lake Superior region (iron ore):					
Missabe and Vermilion ranges	21,151,499	17,864,794	24,658,317	3,286,705	18.4
Gogebic, Menominee and Marquette ranges	3,097,330	3,167,716	3,005,181	70,386*	2.2
In the Southern region—Alabama (iron ore)	3,607,832	3,690,262	3,239,370	82,430*	2.2
In Brazil, S. A. (manganese ore)	140,184	51,769	112,241	88,415	170.8
Total	27,996,845	24,774,541	31,015,109	3,222,304	13.0
Limestone Quarried (includes dolomite and fluorspar)	5,344,893	5,033,889	6,575,694	311,004	6.2
Coal Mined—					
For use in the manufacture of coke	23,692,607	21,041,573	28,234,030	2,651,034	12.6
For steam, gas and all other purposes	7,782,961	6,696,434	7,055,871	1,086,527	16.2
Total	31,475,568	27,738,007	35,289,901	3,737,561	13.5
Coke Manufactured—					
In beehive ovens	3,289,905	3,265,899	7,142,901	24,006	0.7
In by-product ovens	13,011,319	11,142,142	11,694,730	1,869,177	16.8
Total	16,301,224	14,408,041	18,837,631	1,893,183	13.1
Blast Furnace Production—					
Pig iron	14,651,481	12,520,329	16,527,830	2,131,152	17.0
Spiegel, ferromanganese and ferrosilicon	147,518	163,400	201,396	15,882*	9.7
Total	14,798,999	12,683,729	16,729,226	2,115,270	16.7
Steel Ingot Production—					
Bessemer ingots	4,389,328	3,856,559	5,451,390	532,769	13.8
Open-hearth ingots	14,509,369	12,622,298	14,878,560	1,887,071	15.0
Total	18,898,697	16,478,857	20,329,950	2,419,840	14.7
Rolled and Finished Steel Products for Sale—					
Steel rails (heavy and light tee and girder)	1,518,424	1,392,668	1,649,906	125,756	9.0
Blooms, billets, slabs, sheet and tin plate bars	809,946	612,326	715,244	197,620	32.3
Plates	1,425,506	1,280,831	1,783,846	144,675	11.3
Heavy structural shapes	993,241	1,019,923	1,204,395	26,682*	2.6
Merchant bars, hoops, skelp, light shapes, etc	2,805,302	2,313,994	3,007,662	491,308	21.2
Tubing and pipe	1,402,809	1,248,378	1,563,982	154,431	12.4
Wire rods	177,567	147,336	213,518	30,231	20.5
Wire and wire products	1,451,103	1,290,704	1,636,580	160,399	12.4
Sheets (black and galvanized) and tin plates	1,640,521	1,411,075	1,774,467	229,446	16.3
Finished structural work	496,057	477,082	458,595	18,975	4.0
Angle splice bars and all other rail joints	268,690	220,792	288,118	47,898	21.7
Spikes, bolts, nuts and rivets	64,945	58,364	84,456	6,581	11.3
Axles	78,988	93,183	154,876	14,195*	15.2
Steel car wheels	58,274	75,328	104,271	17,054*	22.6
Sundry steel and iron products	79,637	80,924	81,553	1,287*	1.6
Total	13,271,010	11,722,908	14,721,469	1,548,102	13.2
Miscellaneous Products—					
Zinc	69,231	61,982	64,205	7,249	11.7
Sulphate of iron	25,076	22,483	36,079	2,593	11.5
Fertilizer—"duplex basic phosphate"	11,852	13,009	15,748	1,157*	8.9
Fertilizer—sulphate of ammonia	183,248	157,961	150,000	25,287	16.0
Ammonia (as liquor)	1,059	811	2,528	248	30.6
Benzol products	161,906	140,314	143,312	21,592	15.4
	Bbl.	Bbl.	Bbl.	Bbl.	
Universal Portland cement	15,722,000	15,156,000	14,440,000	566,000	3.7

*Decrease.

corporation, in which the committee invested such part of the appropriation. The stock covered by the certificates is deliverable to holders in January, 1931, provided they are then in the service of the corporation or its subsidiaries, or is deliverable prior to that date if they die while in the service or are retired under the corporation's pension plan.

Pensions:—Pensions were paid during the year by the trustees of the United States Steel and Carnegie Pension Fund to retired employees to the amount of $2,068,653, compared with $1,683,921 disbursed in the preceding year. Pensions were granted during the year to 1122 retiring employees. At the close of the year there were 5084 names on the pension rolls, a net increase of 606 during the year. Since the inauguration of the plan in 1914 an aggregate of $13,295,809 has been paid in pensions.

Housing and Welfare:—During the year a net additional amount of $3,388,687 was advanced employees on contracts and mortgages to assist them in building and acquiring homes under the corporation's home-owning plan. At Dec. 31, 1925, the advances due from employees on loans for above purposes, secured as stated, totaled $12,296,413. These advances or loans are repayable in installments over a period of years, with interest at 5 per cent.

Accident Prevention:—In 1925 the total number of disabling accidents of all kinds per 100 of employees was 80.1 per cent less than in 1912 (the earliest year for which statistics are available for all disabling accidents); and for serious and fatal accidents the number per 100 employees was 60.2 per cent less than in 1906, when the campaign for reduction in accidents was first formally undertaken. Liberal outlays are currently made for accident prevention and safety work. In 1925 the total expended was $1,914,100, compared with $1,911,954 in 1924, covering both installation of devices and appliances, rearrangement of equipment to minimize danger to employees and to protect them from injuries, and in instructing employees to avoid liability to injury. The average number of all disabling accidents was the lowest reached in any year since these statistics have been kept.

Accident Relief:—Payments made during the year by subsidiary companies for work accidents, including liabilities accrued under State compensation laws, actual payment of which is spread over a period of years, totaled $4,628,046, compared with $5,080,775 in the preceding year. Eighty-five per cent of the total payments in 1925 was paid directly to the injured employees of their families.

Table VII.—Inventories

	Dec. 31, 1925	Dec. 31, 1924
Ores—Iron, manganese and zinc	$78,195,933	$81,518,333
Limestone, fluxes and refractories	4,938,251	5,388,401
Coal, coke and other fuel	11,546,885	12,153,798
Pig iron, scrap, ferromanganese and spiegeleisen	25,715,460	23,213,114
Pig tin, lead, spelter, copper, nickel, aluminum and dross and skimmings	12,090,190	10,216,726
Rolls, molds, stools, annealing boxes, etc.	13,676,440	13,323,733
Ingots—Steel	2,009,021	1,676,510
Blooms, billets, slabs, sheet and tin plate bars, etc.	26,965,016	28,922,181
Wire rods	1,522,350	1,617,042
Skelp	2,388,294	1,922,705
Finished products	68,014,799	68,218,528
Manufacturing supplies, stores and sundry items not otherwise classified	36,718,680	37,115,096
Mining supplies and stores (for ore and coal properties)	6,052,190	6,389,880
Railroad supplies and stores	6,284,735	6,890,807
Merchandise of supply companies	1,915,323	2,115,078
Material, labor and expense locked up in uncompleted bridge, structural and other contract work $38,780,874		
Less bills rendered on account 33,675,843	5,105,031	2,282,545
Stocks abroad and on consignment	26,689,462	28,622,447
Material in transit	5,902,615	3,846,062
Total	$335,820,675	$335,432,986
Less, inventory reserve	50,143,280	50,391,232
Balance	$285,677,395	$285,041,754

Sanitation:—Expenditures by the subsidiary companies during the year in providing modern sanitary facilities at the several plants and operations for the health and comfort of employees totaled $3,641,740, compared with $3,231,880 in 1924. At the close of the year there were in and about the plants and works 4689 sanitary drinking fountains, 2130 comfort stations with toilet facilities, including 24,930 washing faucets or basins, 4810 showers and 176,701 lockers.

Number of Stockholders:—On Dec. 31, 1925, there were 149,649 registered stockholders, of whom 16,701 held both preferred and common stock. The number holding preferred was 75,493 and common 90,857.

Heavy Automobile Output

February Higher Than January and Much Above a Year Ago

February output of automobiles in the United States, as reported by the Department of Commerce, aggregated 318,632 passenger cars and 37,522 trucks. This is a large increase over the January figures in each case and a large increase over the figures for February, 1925. Compared with February, 1924, however, the passenger car output shows a decrease of about 4 per cent. Aggregate production for the first two months of the year, exclusive of Canadian production, was 590,643 passenger cars and 67,173 trucks.

Canadian production of passenger cars in February was 15,895; of trucks, 3283. These figures are additional to those given for the United States, and include only that portion of Canadian production made by American manufacturers.

Increased Production of Steel Barrels

February output of steel barrels, as reported by the Department of Commerce, amounted to 522,486 units, compared with about 468,000 units in each of the two preceding months. Except for a somewhat larger production in October, the February figures, despite the shortness of the month, were the largest since last May. Shipments have kept pace pretty well with production. Unfilled orders at the end of February covered about 1,700,000 units, compared with 1,766,000 units at the end of January. There was a considerable increase in the proportion of unfilled orders calling for delivery within 30 days.

Figures of the Steel Barrel Manufacturers Institute, Bulkley Building, Cleveland, show that 46.9 per cent of the capacity of the members was occupied in February. This includes 36.3 per cent of the productive capacity of I.C.C. barrels and 49.4 per cent of light barrels. The volume of business for the month is reported at $1,076,626. Only a small fraction of 1 per cent was for export. More than one-quarter of the total shipments of the members went to New Jersey, which State took 100,097 barrels. New York was second, with 79,978 barrels, and Pennsylvania third, with 48,047. No other State reached 30,000. These figures are from the total of 383,721 barrels shipped by members of the institute.

Wholesale Prices Still Falling

Further decline is registered by the United States Department of Labor in the wholesale prices of commodities for February. The figure is given as 155, compared with 156 for January, 156.2 for December and 157.7 for November. For February of last year the figure stood at 160.6, or nearly 4 per cent above the present level.

Metals and metal products continue to hold the lowest position, with an average of 128.4 in February, compared with 128.9 in January. All of the other main items declined, with the exception of fuels, which went up about three points. Clothing at 183.9 continues to stand in the highest position, with fuels at 179.4 second and building materials at 177.1 third. All these figures are index numbers based on 100 for 1913.

International Rail Syndicate Formed

London Report Includes American Mills in Rail Agreement—German State to Underwrite Large Export Sales

(*By Cable*)

LONDON, ENGLAND, March 22.

IT is reported that the International Rail Makers Association has been re-established, negotiations having been completed except for minor details. The association is understood to comprise three groups—Anglo-American, Franco-German and Belgian-Luxemburg producers of rails. Output will be controlled by the association, which will allocate quotas and markets, but each group will establish selling prices. Negotiations for the formation of an international raw steel association will be resumed about the middle of April.

[*Comment on the reported reorganization of IRMA will be found on page 862 of this issue.*]

A lockout in the engineering plants has been averted and strikers are resuming work today.

Pig iron is inactive, but Cleveland prices are being maintained as a result of restricted supplies. Hematite is dull; but with three furnaces likely to blow out at the end of this month prices are steady. Exports of ferromanganese have been reduced as a result of Polish competition on the Continent.

Finished iron and steel is quiet in view of the uncertain coal outlook, but prices generally are holding. Tin plate is quiet, with prices easy. Further reduction of output is anticipated for the near future. The report of a large order for oil can tin plate being placed in Wales is unconfirmed. Galvanized sheets are moderately active on small lot purchases and prices are steady. Black sheets are dull and Japanese light gage specifications have been reduced.

Continental markets are weaker with the depreciation of the Belgian franc but business is restricted. Merchants are inclined to await still lower offers and most mills are reluctant to accept the low offers of consumers. ARBED in Luxemburg has blown in one furnace at its Westerwerks after five years of inactivity. Saar mills recently booked 1500 tons of rails for Brazil.

German State to Aid Business

May Underwrite Large Export Sales—New Tube Syndicate—Wire Product Cartel Planned

BERLIN, GERMANY, March 2.—General improvement in business conditions seems near. Unemployment figures are showing smaller increases, although the total for all industries is still more than 2,000,000, and measures calculated to aid domestic business and export trade are under consideration by the government. The present administration is displaying considerable energy in the encouragement of greater production and larger exports. In addition to the recent decision of the Finance Minister to reduce the fusion tax by about one-half on the formation of the Western steel combination, the sales tax has been reduced and the luxury tax abolished. As the sales tax was exacted on the sales of all products and the luxury tax affected automobiles particularly, both being collected several times over on certain manufactured products that changed ownership in process of fabrication, production costs are expected to be materially lowered.

One of the important steps being taken by the government is the arrangement for state financing of exports. Under the terms of a bill being considered, the state will bear one-third the risk of loss on all products exported on credit, or two-thirds of the loss should default be caused by war or revolution. In this connection it is perhaps noteworthy that the government has undertaken to underwrite 35 per cent of the risk and the German states an additional 25 per cent of the risk on a prospective order from the Soviet Union for oil production machinery and pipe, mining, textile, agricultural and paper making machinery to the value of about 300,000,000 m.

Negotiations for the forming of more important syndicates and cartels of producers continue a feature of industrial activity. Definite establishment of the Western steel combination is expected within the next month. Banks interested in the formation of the corporation at a recent meeting decided that it would be possible to negotiate a substantial domestic loan in

British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at $4.86 per £ as follows:

Durham coke, del'd	£0	19s.		to £0	19½s.	$4.62	to	$4.73
Bilbao Rubio ore†	1	1½				5.22		
Cleveland No. 1 fdy.	3	12½	and	3	13*	17.62	and	17.74*
Cleveland No. 3 fdy.	3	10	and	3	10½*	17.01	and	17.13*
Cleveland No. 4 fdy.	3	9	and	3	9½*	16.77	and	16.88*
Cleveland No. 4 forge	3	8	and	3	8½*	16.52	and	16.65*
Cleveland basic	3	10	and	3	10½*	17.01	and	17.13*
East Coast mixed	3	17		to 3	17½	18.71	to	18.83
East Coast hematite	4	19				24.06		
Ferromanganese	15	10				75.33		
*Ferromanganese	14	5		to 14	10	69.25	to	70.47
Rails, 60 lb. and up	7	5		to 8	0	35.24	to	38.88
Billets	6	0		to 7	10	29.16	to	36.45
Sheet and tin plate bars, Welsh	6	5				30.38		
Tin plates, base box	0	19¼	to	0	19¾	4.68	to	4.80
Black sheets, Japanese specifications	14	12½				71.08		
						C. per Lb.		
Ship plates	7	0		to 7	10	1.52	to	1.62
Boiler plates	11	0		to 11	10	2.39	to	2.49
Tees	7	5		to 7	15	1.57	to	1.68
Channels	6	10		to 7	0	1.41	to	1.52
Beams	6	5		to 6	15	1.35	to	1.46
Round bars, ¾ to 3 in.	7	15		to 8	5	1.68	to	1.79
Steel hoops	10	10	and	11	0*	2.28	and	2.39*
Black sheets, 24 gage	11	5		to 11	10	2.35	to	2.48
Galv. sheets, 24 gage	15	17½		to 16	5	3.44	to	3.52
Cold rolled steel strip, 20 gage	18	0				3.91		

*Export price.
†Ex-ship, Tees, nominal.

Continental Prices, All F. O. B. Channel Ports

Foundry pig iron: (a)									
Belgium	£3	2s.		to £3	4s.	$15.06	to	$15.55
France	3	2		to 3	4	15.06	to	15.55
Luxemburg	3	2		to 3	4	15.06	to	15.55
Basic pig iron: (a)									
Belgium	3	0		to 3	2	14.58	to	15.06
France	3	0		to 3	2	14.58	to	15.06
Luxemburg	3	0		to 3	2	14.58	to	15.06
Coke	0	18				4.37		
Billets:									
Belgium	4	7		to 4	10	21.26	to	21.87
France	4	7		to 4	10	21.26	to	21.87
Merchant bars:						C. per Lb.			
Belgium	5	4½		to 5	10	1.15	to	1.21
Luxemburg	5	4½		to 5	10	1.15	to	1.21
France	5	4½		to 5	10	1.15	to	1.21
Joists (beams):									
Belgium	4	17		to 5	2	1.07	to	1.13
Luxemburg	4	17		to 5	2	1.07	to	1.13
France	4	17		to 5	2	1.07	to	1.13
Angles:									
Belgium	5	2		to 5	4	1.12	to	1.16
¼-in. plates:									
Belgium	5	10		to 5	12	1.21	to	1.23
Germany	5	10		to 5	12	1.21	to	1.23
⅜-in. ship plates:									
Belgium	5	11		to 5	13	1.22	to	1.24
Luxemburg	5	11		to 5	13	1.22	to	1.24
Sheets, heavy:									
Belgium	6	3		to 6	4	1.35	to	1.37
Germany	6	3		to 6	4	1.35	to	1.37

(a) Nominal.

addition to the projected foreign loans. Among the makers of wire products negotiations have been instituted for the formation of an international cartel or an international price convention. Included are a number of German, Austrian, Czechoslovakian, Hungarian and Jugoslavian manufacturers of wire products. No agreement has yet been reached.

A more extensive association of tube mills than is now represented by the German Tube Syndicate is projected. The present Rohrenverband includes makers of gas and boiler tubes ranging up to 316 mm. (12½ in.). The syndicate under consideration would include makers of larger sized tubes. The leading tube works such as the Mannesmann, Thyssen, Phoenix, Gelsenkirchen and Rhenish interests have expressed themselves as favorable to such an association. In this connection it is perhaps noteworthy that the French steel interests are reported to have sold their 40 per cent interest in the Stumm Brothers mills in the Saar.

A preliminary program for the formation of an international steel syndicate is understood to have been mapped out by the negotiators. This would include the determination of productive capacity of the countries involved, based on their domestic demand, from which their future production and share of export trade would be figured. As actual production would be fixed temporarily at considerably below the present output. French mills are understood to be demanding compensation for the loss to them through abandonment of their present advantage because of depreciated currency and low production costs. This is expected to be the principal subject of debate at the Paris meeting of the negotiators, but agreement is not considered likely until improvement in the exchange or stabilization of the franc has much reduced this advantage.

Belgian Mills Seek New Orders

Lack of Tonnage and German Export Competition Cause Price Weakness—Pig Iron Still Strong

BRUSSELS, BELGIUM, March 5.—Lack of confidence in the future continues an effective check on business and the iron and steel markets continue dull with the tendency toward greater weakness. Mills which have been well booked and unwilling to shade find themselves with lighter backlogs of business and few new contracts to offset the heavy current shipments. In the export market, German competition is a factor, French, Luxemburg and Belgian mills being at about the same level, one shilling or more higher.

Pig Iron.—Unlike the steel markets, pig iron is firm, showing a slight tendency to advance. Domestic demand is so heavy that furnaces as a rule show only moderate interest in making further export commitments. The domestic price is from 330 to 335 fr. ($13.20 to $13.40) per metric ton, and the export quotation 342.50 to 347.50 fr. ($13.70 to $13.90) per metric ton, f.o.b. Antwerp.

Semi-Finished Material.—A plentiful supply and a distinct tendency to weakness are features of the market. Blooms are weak at £4 1s. to £4 1s. 6d. per ton ($19.68 to $19.80), f.o.b. Antwerp, and billets are in better demand but also weak at £4 7s. 6d. to £4 8s. per ton ($21.25 to $21.38), f.o.b. Antwerp.

Finished Products.—Lack of confidence in the future is aggravating the meagerness of current demand and mills are beginning to develop considerable weakness in prices. Beams are quoted for export at £4 17s. ($23.57) per metric ton, which is about one shilling above the current German price. Angles are weak at £5 4s. ($25.27) per metric ton, f.o.b. Antwerp. Bars are developing a distinct weakness, quotations on large lots for export having declined to as low as £5 5s. ($25.50) per metric ton, f.o.b. Antwerp. In the meantime German sellers are quoting as low as £5 4s. ($25.27) per metric ton. Rails are fairly stable at about £5 10s. ($26.73) per metric ton, f.o.b. Antwerp. Wire rods are quoted at £5 14s. ($27.70), f.o.b. Antwerp. Sheet mills are beginning to offer greater concessions and in export trade German competition for medium and heavy gages is keen. Medium gage sheets are quoted at about £5 19s. ($28.92) per metric ton by Belgian mills, while the German price, as on most other products, is about £5 18s. ($28.67) per metric ton.

German Business Improved

Automobile and Electric Equipment Builders Report Activity—Pig Iron Continues Strong

BERLIN, GERMANY, March 2.—The improvement in sales of heavy iron and steel products which began to be noticeable early in February has made no further progress, but the market is substantially unchanged. The scrap market is still active, promising better conditions in the finished steel market before long. Export trade is improving with the approach of spring. The pig iron and raw steel syndicates have maintained their prices unchanged for March and the 35 per cent reduction of steel output is still in effect. Conditions in the coal industry are better, but production is still at a low level.

The Raw Steel Syndicate is preparing to revise its system of granting price reductions on sales of steel which when fabricated will be sold for export. Under the revised plan the loss sustained on such sales will be distributed among the member corporations. Offers of domestic and foreign ores are considerable but consumers show no haste in purchasing. Prices of hematite have declined slightly. Stocks of ore on hand are large.

The automotive industry reports a moderate improvement, partly as a result of the increased demand for moderate priced cars, ranging in price from 6000 to 12,000 m., and for trucks. While German-made trucks seem to be preferred by buyers, foreign manufactured passenger cars, the price being equal to the German product, seem to have the preference.

Among the manufacturers of electric equipment, Siemens & Halske A. G. have secured a 4,000,000 m. order for telephone material to be installed in Kobe and Osaka, Japan. The government policy of buying privately owned electric light and power plants is meeting with serious opposition from the electric industry. Previously the government has purchased only projects which could not be profitably operated under private ownership, a policy which received the support of the electrical industry, but recently attempts have been made to enter into serious competition with privately owned projects and, when a loan was announced last year for the purpose of extending the government's activities along these lines, the opposition became strong.

In addition to the government activities, Berlin municipality is planning to acquire the electric elevated and subway systems of the city, at present owned and operated by a private company.

World Demand for Steel Rails—American Exports Small

A complete realinement in exports of steel rails has taken place since the war, with considerable change even in the last two years. The rail exports of the five leading countries for 1923 and 1925 compared with 1913 have been as follows in tons:

	1925*	1923	1913
United States	151,700	267,600	452,400
Great Britain	207,600	287,500	500,100
Germany	318,900	41,600	500,800
France	227,400	246,200	75,700
Belgium	192,300	203,800	164,500
Totals	1,097,900	1,046,700	1,693,500

*Estimated in some cases.

Designating the totals as demand from the non-rail-making nations, there was only a little more buying for 1925 than for 1923, but it was off from 1913 by 600,000 tons or about 35 per cent. The 1924 total was 981,700 tons. The marked falling off in American and British sales last year and the decided expansion in German exports recently and in French and Belgian business over 1913 are noteworthy.

Commercial Handbook of Russia

Growing Production of Metals and Metal Products—Still Far Below Pre-War Figures

What is said to be the first complete statistical summary of the Soviet Union issued in this country has been made public in a 40-page commercial handbook by the Russian Information Bureau, Washington. This deals with a great variety of subjects, mainly along the line of production of various commodities, agricultural, mineral and manufacturing. Of special interest in the metal field are the figures for output of iron ore, manganese ore and copper, and of pig iron, steel and rolled iron and steel products. The outstanding figures along these lines are tabulated below:

Thousands of Metric Tons

Production of	1913	1923-24	1924-25	1925-26 (Program)
Iron ore	8,689	942	2,050	4,111
Ratios	100	10.8	23.7	47.3
Manganese ore	1,221	420	540	1,000
Ratios	100	34.4	45	82
Copper pyrites	....	100	167	....
Cupriferous iron pyrites	....	8.9	26.5	....
	1913	1922-23	1923-24	1924-25
Pig iron	4,206	300	661	1,304
Steel ingots and castings	4,247	615	993	1,865
Rolled iron and steel	3,509	474	690	1,335

It is pointed out that during the past fiscal year (ended Sept. 30, 1925) the Soviet Trusts operated 41 blast furnaces, 107 open-hearth furnaces and 186 rolling mills. Production figures for recent years are, of course, independent of the Polish production, which was included in the Russian total in the years before the war.

British Iron and Steel Foreign Trade in January

Exports of iron and steel from Great Britain in January at 345,552 gross tons were less than the December exports of 348,187 tons. Deducting scrap the December total was 336,664 tons or larger than the corresponding average for 1925 of 310,900 tons per month. The January data compared with previous years are as follows:

Exports of Leading British Steel Products in Thousands of Gross Tons Per Month

	Jan., 1926	1925	1924	1913
Pig iron and ferroalloys	49.2	46.6	49.9	93.7
Iron bars, rods and shapes	2.6	3.1	3.5	11.8
Steel bars, rods and shapes	20.4	19.8	23.2	20.9
Hoops and strips	3.3	5.1	5.7	3.8
Plates and sheets	8.4	9.9	15.4	11.2
Black plates and sheets	27.3	19.5	24.5	11.7
Galvanized sheets	68.2	59.4	54.1	63.5
Tin plates and sheets	40.0	42.6	46.3	41.2
Rails	23.8	17.3	15.4	42.2
Cast tubes, pipes and fittings	11.3	7.8	7.0	19.6
Wrought tubes, pipes and fittings	19.4	16.0	14.0	13.7
Wire and manufactures	9.6	9.8	10.7	9.6
Total of all exports (except scrap)	336.7	310.9	321.0	414.1

Imports at 240,435 tons (221,663 tons, aside from scrap) were larger than the average for 1925 of 234,900 tons per month (226,750 tons, aside from scrap).

Manganese Ore Production in Russia

WASHINGTON, March 20.—Production of manganese in the Chiaturi mines of the Soviet Union, now operated by the Harriman interests under a concession agreement, showed a big upward jump in the first quarter of the current Soviet fiscal year, Oct. 1 to Jan. 1, according to a bulletin received by the Russian Information Bureau here. This is the first period of normal operation under the concessionary.

The output of ore for the quarter was 194,872 tons, as compared with 87,664 tons for the same period of last year. The output of the concentrating plants was 111,582 tons, as compared with 70,233 tons for the same period last year. The number of workers in the mines Jan. 1 was 2463, and in the concentrating plants, 505. Mines in operation in December were 36, as compared to eight a year ago.

Exports of Chiaturi manganese for the quarter were 120,527 tons, as compared with 71,088 tons in the same period of the previous year. It is estimated that about half the exports find their way to the United States.

Immigration in January

WASHINGTON, March 19.—Aliens admitted to the United States in January totaled 29,733, while those departing numbered 15,081. Of the number admitted 19,072 were newcomers for permanent residence in the United States, according to the Bureau of Immigration. Canada and Mexico continue to be the chief sources of immigrant aliens since the present quota law became effective July 1, 1924. The influx from these two countries yielded a net immigration of 64,927, or nearly two-thirds of the total net immigration for the seven months from July, 1925, to January, 1926. Germany led by far as the European source of immigration in January, the number from that country being 3333 out of a total of 9304 coming from Europe. Of the January immigrants, 104 were listed as iron and steel workers; 190 as machinists, and 24 as metal workers.

There was a decrease in emigration, however, of nearly 20 per cent during the last seven months, compared with the same period ended Jan. 31, 1925.

Germany Wants American Machinery on Time Basis

WASHINGTON, March 22.—Imports of machinery into and exports of machinery from Germany in 1925 showed increases, according to Trade Commissioner Theodore Pilger, Berlin. The total German importation of all machinery, including industrial and agricultural, but excluding electrical equipment, amounted to 38,400 tons, valued at 76,500,000 gold marks. Compared with 1924 imports of 13,300 tons and a pre-war record in 1913, of 67,900 tons, according to Mr. Pilger, it is evident that Germany is returning to be an important purchaser of foreign machinery, principally American and British.

Mr. Pilger said that American machinery is strongly in demand and that inquiries indicate the market's need for special American apparatus. Many of these inquiries are coupled with requests for long credit.

Confer on Countervailing Duties on Pig Iron

WASHINGTON, March 19.—Representatives of Eastern merchant blast furnace interests held a conference here on Thursday of last week with customs officials of the Treasury Department regarding the effort to have countervailing duties assessed against imports of pig iron from India on the strength of bounties paid by the Indian government for the production of steel ingots for export. It is understood to be the contention of the domestic pig iron makers that the bounties paid on steel ingots constitute indirect bounties on pig iron within the meaning of the Fordney-McCumber tariff act. The view, however, is challenged by those opposed to assessment of the countervailing duties, who claim that the bounty applies directly on ingots and indirectly on manufactures from the ingots but not to the material (pig iron) from which the ingot is made.

Increased Production in Russia

WASHINGTON, March 13.—The metal industry of the Soviet Union showed a substantial increase in output for the first quarter of the current Soviet fiscal year, Oct. 1 to Jan. 1, according to a bulletin received here by the Russian Information Bureau. Iron and steel production advanced from 16 to 31 per cent over the previous quarter, while copper smelting showed no gain. The figures for the quarter, in metric tons, are as follows:

	Tons	Per Cent Increase Over Previous Quarter
Pig iron	479,396	16
Steel	649,731	24
Rolled products	482,657	31
Copper	2,160	none

Business Analysis and Forecast

BY DR. LEWIS H. HANEY

DIRECTOR, NEW YORK UNIVERSITY BUREAU OF BUSINESS RESEARCH

Favorable and Unfavorable Factors Affecting Business May Be Summarized as Follows:

Favorable Factors

1. Signs of approaching stabilization of commodity prices
2. Easy money markets
3. Large consumer purchasing power
4. High volume of bank debits and retail trade
5. Decline in general commodity exports checked, temporarily at least
6. Bank credit situation improved

Unfavorable Factors

1. The more reliable trade barometers still point downward
2. Decline in building permits and contracts
3. A declining stock market
4. European uncertainties
5. Apparent flattening of the Florida land boom

THE minor recession which started two months ago is still in evidence, but the fact that retail trade is high and production well within the limit of consuming demand indicate that no prolonged or severe depression is to be expected.

THE net conclusion to be drawn from a survey of the business situation is that the current trend is moderately downward and is likely to continue so for at least another month or two. Probably the worst feature in the situation is the continued decline in commodity prices. This causes a general postponement of purchases and to some extent means reduced profits, particularly in merchandising and in industries in which there is a considerable lag between the purchase of materials and the sale of the product.

Perhaps the next worst feature is found in the growing indication that the building boom is drawing near its end. February declines, both in permits and in contracts, indicate that, while the volume of construction may continue large, it is no longer on the increase. Some decline seems probable during 1926.

The decline in the stock market is undoubtedly a factor in the situation. It affects sentiment unfavorably and very justly so, since the stock market is generally one of the most sensitive business barometers. The sharpness of the decline in the stock market, however, is out of all proportion to the probable decline in business. In fact, it represents chiefly a financial readjustment and a pricking of several speculative bubbles. Owing to the possession of large credit reserves and to the moderate demand for commercial loans, the banks had allowed too large a proportion of their assets to take the shape of loans on stocks and bonds. Various pools had pushed several stocks up to unreasonable levels on the strength of "merger possibilities" and anticipated melon cuttings. The cleaning up of this situation has little bearing on industry.

While there is a possibility that a period of depression may develop, this does not seem to be a probability. On the average, industry does not show a condition of overproduction, but rather one of considerable restraint and moderation. Certainly there has been no general speculative excess, the money market has not been strained, and money is fairly easy.

No Great Decline Likely

THE two indexes of business trends which are illustrated in Fig. 1 show some divergence. Outstanding is the fact that bank debits, representing the volume of

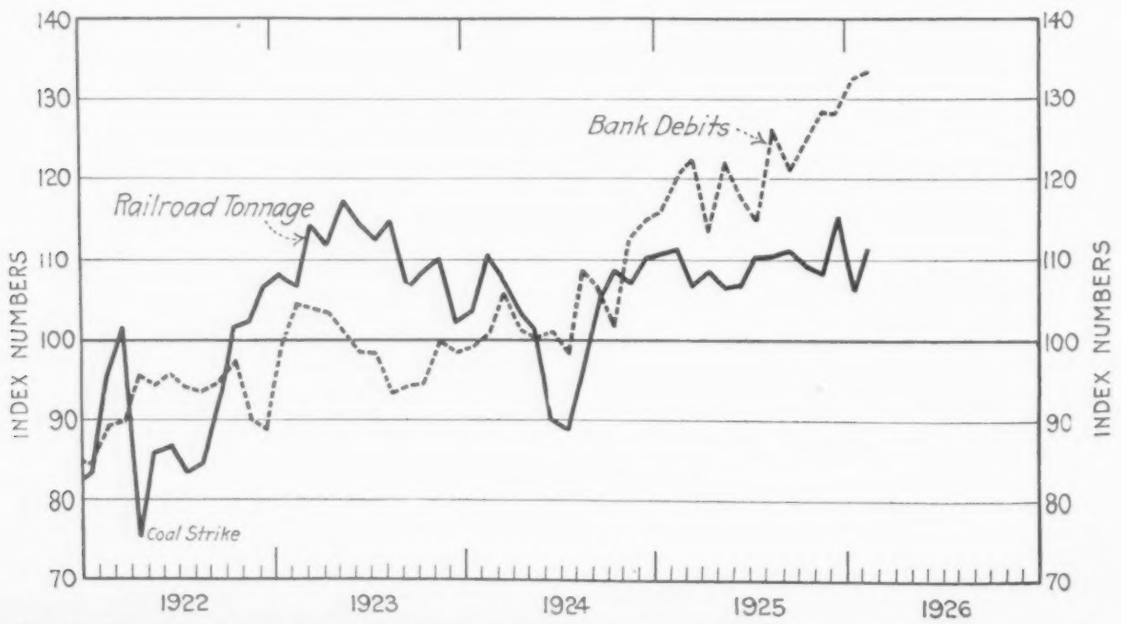


Fig. 1—The adjusted index of railroad tonnage has been fairly stable for more than a year; bank debits, on the other hand, have been breaking records for several months

In This Issue

Trend of scrap prices and of unfilled orders continues downward.—But these barometers do not indicate any prolonged or severe depression: Consumption of manufactured goods in general continues in excess of production; no reason to anticipate long continued weakness.—Page 854.

Bookings of Steel Corporation at rate of 80 per cent of capacity during February.—Average for 1925 was 78.4 of capacity; average price received per ton last year was $3.80 less than in 1924: Average selling price of finished products of Bethlehem Steel Corporation $3.48 below 1924.—Page 845.

Same ore prices that prevailed last year named for 1926.—Price advance rumored earlier nullified by lower prices for pig iron; 150,000 ton inquiry brings confirmation of old price on March 17.—Page 859.

Steel Corporation writes much obsolete equipment off books: had been largely discounted by recent improvements.—Disposes of, or abandons 614,000 tons pig iron capacity, 614,000 tons of ingots, 538,000 tons of blooms, billets and sheet bars and 355,000 tons of finished rolled products.—Page 846.

Only one of Steel Corporation's first nine years of business showed lower per ton earnings than 1925.—High cost of replacing obsolete equipment and sharp competition resulting in lower average prices per ton of finished product make profits precarious.—Page 863.

February iron and steel imports highest since March, 1923.—Exports show decline from January; imports for eight months 212,000 tons more than in previous similar period; exports 160,000 tons more than during same months year ago.—Page 887.

Iron house in England still inhabited after more than century and a quarter.—Metal still in excellent condition; steel joists used nearly 50 years in New York building found to be in good condition.—Page 840.

Says naval demand for steel in 1881 was chief reason for foundation of American steel industry.—Influence of naval requirements and developments in equipment quite out of proportion to amount of tonnage used.—Page 831.

New etching reagent brings out structure of copper or "Corson" alloys in remarkable manner.—Ten per cent solution of chromic acid, acidulated with two drops of hydrochloric acid in every 50 cc. of solution found very helpful.—Page 834.

Proposed metric bill would force the metal working industry to spend $350 for every $1,000 in plant, is claim.—Also stated that introduction of metric system here would open door to many imports of foreign products now deterred by difference in systems of measurement.—Page 857.

American Society for Testing Materials adopts standard specifications for high temperature bolt steel.—Considerable opposition shown to standard specifications for steel castings at high temperatures and pressures. Page 837.

Sheet Metalware Association votes to eliminate 281 varieties of household sheet metalware.—Makers of steel sash for doors and windows confer on standardization; conference on simplification of wire and sheet metal gages makes headway.—Pages 839, 857, 861.

Formation of international steel rail association would probably mean better profits for Continental mills.—Not likely that American interests will formally join such association, but British influence will possibly work to prevent any drive against us in international rail market.—Pages 849, 862, 886.

Stock market break has disclosed no corresponding weakness in business structure.—No signs that public is anxious to unload securities; new issues have been financed largely through surplus income.—Page 864.

February business in a nutshell.—Fabricated bookings 2 per cent above January, (186,000 tons); sheet production at more than 100 per cent of plant capacity; passenger car output 318,632 and trucks 37,522—(above January) but some signs point to reduced schedules; steel barrel output 522,486 units, largest since last May (save October); fewer stokers sold than in any month for year except August; average price of wholesale commodities now 155 as against 156 in January and 160.6 a year ago.

CONTENTS

March 25, 1926

The Navy and the Steel Industry 831

Delving Into Metal Structures 834

Making New Metal Specifications 837

Iron and Steel Dwellings of Tomorrow 840

$3.80 Less Per Ton Than in 1924 845

Exports Lower; Imports Higher 887

Moving Picture Shows Fabrication of Steel Railroad Cars 833
Simplifications of Wire and Sheet Metal Gages to Be Investigated 839
Manganese Ore Production in Russia .. 851
Germany Wants American Machinery on Time Basis 851
Attacks Inquiries Into Trade Bodies 856
Argue Against Metric System Bill 857
Forming Metal Products in Metal Molds 858
Lake Superior Ore Prices 859
Fatal Explosion at Woodward Furnace. 859
Simplification in Sheet Metalware 861
Correspondence 865
Fuels Used in Industry 865
United States Refractories Change 886

NEW EQUIPMENT

High-Production Milling Machine 842
Crank Planer with Side Head 843
Deep Slotting Cutter 844
Motors with Automatic Rotor Recentering Bearings 844
Double-Slide Angle Plate Cutter 844

STATISTICAL

Lower Bookings of Steel Castings 833
Heavy Automobile Output 848, 860
Increased Production of Steel Barrels .. 848
Wholesale Prices Still Falling 848
World Demand for Steel Rails 850
British Iron and Steel Trade 851, 858
Immigration in January 851
Commercial Handbook of Russia 851
Fabricated Steel Bookings 858
Bethlehem and Midvale Reports 860
Electric Power Production 886
British Industrial Machinery Exports Higher in 1925 888

MEETINGS

American Society for Testing Materials 837
Waste Material Dealers 861
Several Meetings 861
Worcester Metal Trades 865

DEPARTMENTS

European Steel Markets 849
Business Analysis and Forecast 852
Editorial 862
Iron and Steel Markets 866
Comparison of Prices 867
Prices of Raw and Finished Products, 869-871
Non-Ferrous Metals 883
Personal 884
Obituary 885
Machinery Markets 889

Past and Future Demands of the Navy

FEW of us have realized the real helpfulness of some of the Government departments in developing industrial enterprises. Least of all has it been in mind that so powerful an entity as the steel industry could have leaned upon the Government for its support in getting out of its swaddling clothes. Yet that such is the case, with the Navy as the cooperating agency, is made clear by the facts as set forth in the leading article this week and in two to follow.

The account in this issue is interesting further in pointing out that the almost revolutionary changes that are occurring in marine warfare will demand new devices and equipment, to be supplied by the metal trades.

For News Summary See Reverse Side

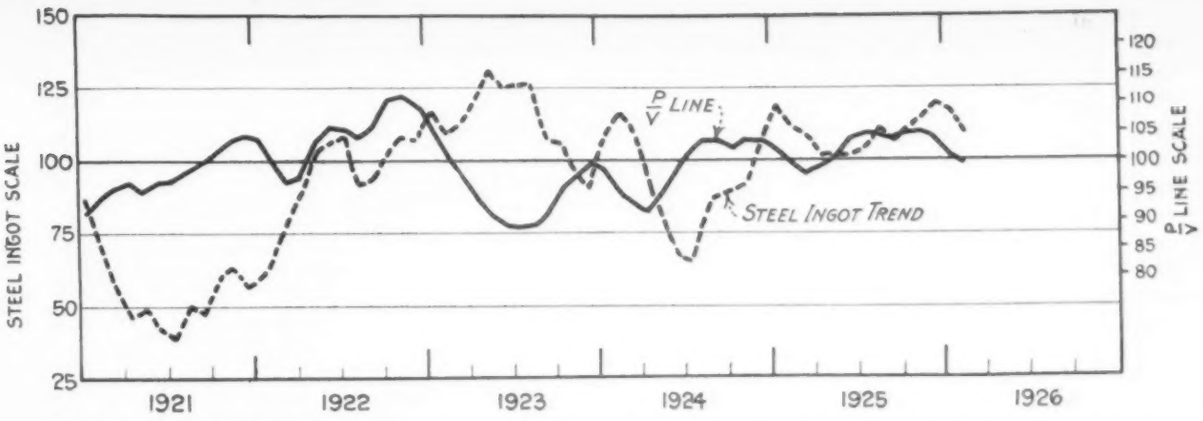


Fig. 2—The P-V Line Still Trends Downward and Is Closely Paralleled by the Adjusted Index of Steel Ingot Output

checks drawn, have reached a phenomenally high level. February bank debits broke all records for the month and were extraordinarily large, when considered alone or in comparison with the physical volume of trade.

On the other hand, railroad tonnage has continued fairly stable. February was but little larger than a year ago. The volume of railroad traffic has shown a long flat top, while bank debits have risen sharply to a high peak.

Down to the middle of 1924 the two curves were roughly similar, but since that time it is apparent that the volume of trading, speculative transactions, etc., has run much ahead of the industrial output measured in physical units. Certainly production and physical volume of trade have not been excessive and are likely to show but a moderate decline. The volume of bank debits is more likely to be affected by liquidation and may be expected to slump more sharply.

On the assumption that a major cycle began in the middle of 1924, it is apparent that we are now from 19 to 20 months along in the upward swing and the question naturally arises—Will a major decline begin soon? This is a possibility. But the divergence in our two cyclical curves suggests another interesting possibility. The physical volume of trade (as measured by railroad traffic) shows an absence of any large expansion and the same is true of the Federal Reserve Board's index of production in basic industries (Fig. 4).

Allowing for seasonal conditions and for normal growth, production of iron and steel has been rather steadily maintained during the last two years. With an easy money market and little or no general overproduction, it is hard to see why any large decline should occur in the total industrial output. On the other hand, we find not only bank debits but such indexes as retail trade, bank loans on stocks and bonds, and production in some manufacturing industries (e.g., automobiles) soaring to a high peak at the end of 1925. In these cases a larger decline seems probable.

In short, the present stock market crisis appears to be connected with a financial readjustment involving a deflation in the stocks of some groups and a recession in production in some manufacturing industries. Also there is likely to be a check to the expansion of retail trade. The situation in most basic industries, however, is relatively sound and is not likely to be much affected.

Some Readjustment Indicated

THE P-V line continued its downward course in February, and in spite of some recent indications of a slight firming of commodity prices it forecasts further recession in industry and trade.

As usual, the trend of steel ingot production has paralleled the P-V line—when allowance is made for seasonal variations. Current reports indicate a high rate of steel production, but it must be remembered that a March increase of upward of 12 per cent would be merely the usual seasonal expansion and any smaller increase would be reflected in a further decline in our adjusted ingot curve. Judged by the past, steel makers will do well to adjust their output to the indications of this barometer.

Both of the most sensitive steel barometers agree with the P-V line in indicating further recession. The trend both of steel scrap prices and of the changes in unfilled orders of the United States Steel Corporation has been a declining one for three successive months (see Fig. 3). This fact is significant both for business in general and for the iron and steel industry in particular.

It should be noted that neither of these barometers has declined as sharply as was the case a year ago. Moreover, when allowance is made for seasonal variation, the decline in unfilled steel orders was not so rapid last month as in either of the two months preceding. It is unlikely that the downward trend of the curves will continue very long.

No Overproduction

A FAIRLY good picture of the general business situation is shown in Fig. 4, which presents indexes of both wholesale and retail trade, together with the Fed-

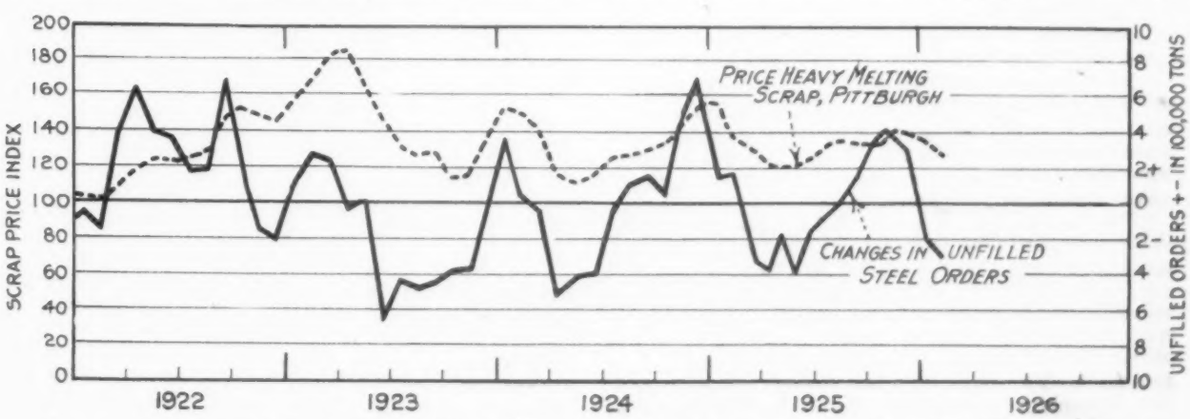


Fig. 3—The Rate of Decrease in Unfilled Orders Has Fallen Off but the Fact That This Index and Scrap Prices Are Both on the Downgrade Should Suggest Caution to Producers

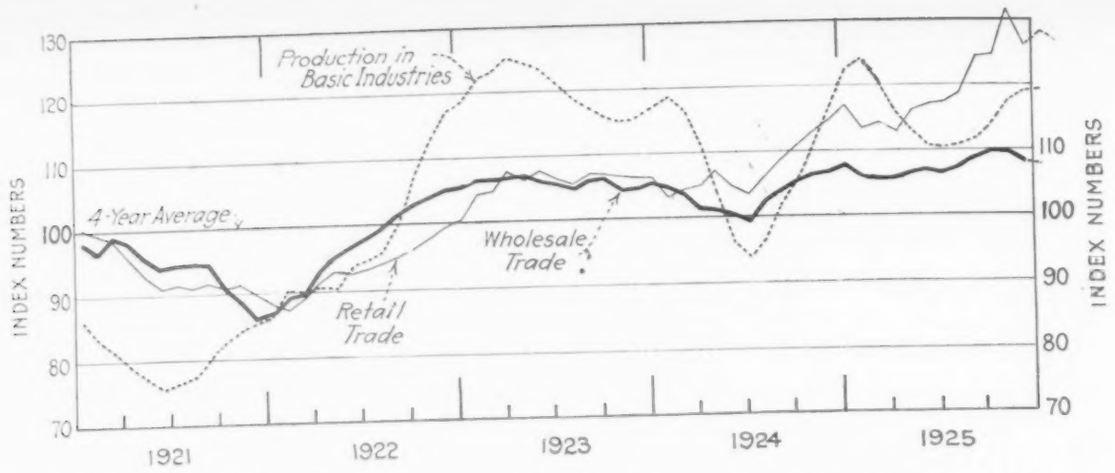


Fig. 4—Retail Trade Volume Is Still Well Above the Four-Year Average of Production in Basic Industries, Indicating That Consumption Is Still Large

eral Reserve Board's index of production in basic industries. It will be noted that the production curve somewhat resembles that of railroad tonnage, while the retail trade curve approximates the general trend of the index of bank debits (see Fig. 1). Accordingly, we find retail trade running ahead of basic production, just as bank debits have run ahead of railroad tonnage.

An interesting point is the fact that *production in basic industries shows no indication of a cyclical peak. Indeed, it is lower at the beginning of* 1926 *than at the beginning of* 1925*—and is much under the* 1923 *peak.*

Furthermore, the situation is favorable from a production angle in that the curve for basic industries still lies considerably below the curve of retail trade and is not nearly so much above that of wholesale trade as it was in 1923 or early in 1925.

It must be concluded that the facts show that retail trade has suffered a relapse, that the trend of wholesale trade is clearly downward, and that even the curve of production in basic industries has turned slightly; but that the chart is reassuring in that it indicates that no general overproduction exists.

Attacks Inquiry Into Trade Bodies

Says Coercive and Deceptive Methods Should Not Be Used by Commission

WASHINGTON, March 23.—The Federal Trade Commission is not a detective bureau nor a secret service organization, and cannot afford to obtain information by any method that contains an element of deception or coercion.

This curt statement is made by Commissioner William E. Humphrey, in a minority report protesting the action of the majority of the commission in undertaking a wholesale investigation of trade associations of the country. This inquiry is being made under a Senate resolution which calls for an investigation of the activities of open price associations. Instead of confining its survey to this small class of trade associations, however, the commission has sent out questionnaires to all known associations of the country and, as pointed out previously in THE IRON AGE, has done so on the ground that this is necessary in order to determine which ones are open price organizations.

The resolution says, in the third paragraph:

> Whereas such associations may exert a large influence in maintaining prices at an exorbitant level, particularly in the case of manufacturing concerns the products of which are protected by a high tariff.

Mr. Humphrey, who declares that associations which are not of the open kind have an absolute right to refuse to respond to the commission's questionnaire, stated that "he would be a credulous political neophyte who could not translate the meaning" of the paragraph of the resolution just quoted.

The commissioner also disclosed the fact that replies to the questionnaires were not satisfactory to the Economic Division. Dr. Francis Walker, head of the division, according to Mr. Humphrey, declared that the only scientific way to procure the information needed was to send out questionnaires to associations that were not open-price and, of course, not within the purview of the resolution. The commission has directed him to do this, Mr. Humphrey said, after the majority refused to compel him to file a memorandum giving the reasons therefor.

"Heretofore," Mr. Humphrey said, "these complaints have been made where the commission has proceeded against such parties as have been accused by someone of violating the law; but we now propose to extend this inquisitorial system of prying into the private business of those who have not been accused—against those who are admitted to have done nothing wrong."

Mr. Humphrey even attacks the good faith shown by the questionnaire and expresses particular regret because the questionnaire and the letter accompanying it contain on their faces "an element of deception." This, he said, is reflected because the questionnaires and letters do not plainly state that the commission has no legal right to require them to be answered. Mr. Humphrey said they should state all the facts and that there should not be any misleading by omission. He asserted that it is a case of not treating the citizen with the frankness and spirit of fair dealing that he has a right to expect from his government.

"Such failure is to a degree not only to practice coercion, but it is an attempt to obtain evidence by a method that has in it an element of fraud and false pretense," declared Mr. Humphrey.

Continuing, Mr. Humphrey said:

> The average business man is highly intelligent and entirely human, and when he receives such questionnaires, he knows that the commission is not dealing frankly and openly with him. It arouses his suspicion and his resentment. . . . If the questionnaires stated fully that the information sought, we believed, was for the public good, and that we sought his cooperation and that his assistance would be appreciated, and that we had no desire to pry into his business, and that it was entirely voluntary on his part whether he replied or not, I believe that then we would get a far larger number of replies to our questionnaires, and that such replies would be fuller and more satisfactory.

Private users of the mails would no longer be charged up with the expense of mailing millions of letters and parcels by the United States Government departments, under a resolution passed by the Associated Advertising Clubs of the World, 383 Madison Avenue, New York, which provides that the special services be paid out of the general treasury of the Government and be not as it is today, a charge against the paying users of the mails.

Argue Against Metric System Bill

Cost to American Industry in Changing Estimated at $10,000,000,000—Views of Machine Tool Builders

WASHINGTON, March 23.—In the course of his testimony before the House Committee on Coinage, Weights and Measures, Nathan B. Williams, associate counsel National Association of Manufacturers, estimated that it would cost American industry $10,000,000,000 to change to the metric system. He based his figures on a statement received from Stanley H. Bullard, vice-president Bullard Machine Tool Co., Bridgeport, Conn. In a statement to Mr. Williams, Mr. Bullard said the cost of revising manufacturing equipment with jigs, tools, and fixtures, would be equivalent to approximately $350 for every $1,000 invested in the plant, to which must be added the cost of training the skilled labor in this (machine tool) industry to the use of the new dimensions, and the actual expense for the small measuring instruments and devices used by the skilled mechanic.

Commenting on Mr. Bullard's statement, Mr. Williams said that "Statistics of Income," published by the Treasury Department, shows that in 1923 investment in American manufacturing plants aggregated $28,000,000,000. "Most assuredly we have about $30,000,000,000 now," said Mr. Williams, "so that, based on the estimate of $350 per $1000, this would certainly exceed $10,000,000,000 or more than the cost of America's participation in the World War."

Evidence grows that the bill, which apparently had the support of the majority of the members of the committee when it was first introduced at the present session, is now doomed to defeat in the committee itself. Plainly there has been a change in the attitude of a number of members of the committee, so that it is now believed that the bill will not be reported out favorably. This change of mind is due to the presentation of practical facts by opponents of the bill.

Testimony against the bill by machine tool builders was presented by A. C. Cook, Warner-Swasey Co., Cleveland; E. F. DuBrul, Cincinnati, general manager of the National Machine Tool Builders' Association, representing 80 per cent of the metal-working machinery industry of the country, and Col. E. C. Peck, Cleveland Twist Drill Co., Cleveland.

In an attitude of good-natured challenge, Mr. DuBrul told members of the committee that instead of making the bill effective in ten years he suggested that they make it effective next year and assured them that if they did, not one of them who voted for the bill would return to Congress. Speaking of foreign business done by the machine tool industry, Mr. DuBrul said it represents only about 10 per cent of production and that a great part of the exports go to English speaking countries, where the English system of measurement and weights is in use. He said, however, that the export business is not hurt adversely in markets where the English system does not prevail.

Mr. Cook recited his foreign experience. He told the committee that he did not think there ever had been raised a question as to whether tools had been made by the American or metric system. He said that the industries use decimals of inches and not decimals of millimeters, making this point to clear up a confusion that the decimal system is the same as the metric system. It was estimated by Mr. Cook that the cost to his company alone in changing its drawings would be $100,000, and that added to that would be a cost of about $750,000 in changing tools, gages, fixtures, etc. Moreover, he pointed out, every man in the employ of the company would have to replace equipment in his kit, which, Mr. Cook said, would cost each workman from $200 to $250, the tools being the personal property of the workmen.

Mr. Cook pointed out that the two nations, America and England, which share the greatest proportion of metal-working machinery export business, are on the English system and that this fact was conclusive that the metric system would be of no advantage. Moreover, he said that if this country should adopt the metric system it would open the doors to imports of foreign products which do not now come in. The cost would have to be passed to the ultimate consumer, if the change were made, he said.

Speaking as Vice-chairman of the National Screw Thread Commission, Colonel Peck told of the effort that had been made by the commission to establish international, interchangeable threads. He said, however, that this is the only nation making threads interchangeable and that this is done on the English system, so that should there be a change to the metric system all this important work would be for nothing.

Mr. Van Alstyne said that the foreign sales department of the American Locomotive Co. had reported that if a change were made to the metric system the company would have difficulty in furnishing locomotives to the British Empire, which is the company's most important foreign buyer, taking two-thirds of the locomotives exported by the company. He estimated that the change would cost the company from two to three million dollars and that it would be compelled to pass the cost to the railroads.

H. L. Horning, Waukesha, Wis., president Motors Accessories Association, and former president of the Society of Automotive Engineers, said that the automotive manufacturers, as well as makers of accessories, oppose the metric bill. He startled the committee somewhat by stating that nobody would obey the law if made effective and added that it would be another Volstead act. He asserted that if the change were to be Jan. 1, 1935, industry would not attempt to make the change until Dec. 31, 1934.

Speaking for the Bell telephone interests, including the Western Electric Co., E. B. Craft, New York, second vice-president of the Bell Telephone Laboratories, said the interests he represents have a plant investment of $3,000,000,000, with 325,000 employees and 500,000 stockholders. The cost in the change of drawings and specifications to the Western Electric Co. was estimated at $6,000,000, and he said it would take 25 years before complete adjustment could be made. He was surprised, when he made a canvass among the large personnel of the laboratories, to find that though chemists, physicists, etc., they were not pro-metric.

To Reduce Varieties of Steel Sash

WASHINGTON, March 22.—Reduction of variations in sizes and dimensions of steel sash for doors and windows was considered here last week at a preliminary meeting of manufacturers with the Division of Simplified Practice and the National Metals Utilization Committee, W. Chattin Wetherill, director, presiding. Committees, appointed from each of the three groups into which the industry is divided, will send out questionnaires to ascertain the existing variations and the demand for the various items in each class. It is planned to have the preliminary figures consolidated by the division before the next meeting, May 4. The three groups of the industry include the double-hung windows, casement windows and solid-section steel windows, committees from the groups being selected as follows:

Double-hung windows: Milton T. Clark, Truscon Steel Co., Youngstown, Ohio; Clarke P. Pond, David Lupton's Co., Philadelphia; Loring Washburn, S. C. Pomeroy Co., Inc., New York; Frank Voightman, Voightman & Co., Chicago.

Casement windows: Milton T. Clark; Clarke P. Pond; W. C. Randall, Detroit; R. J. Carlson,

International Casement Co., Jamestown, N. Y.; Guy D. Bayley, Springfield, Ohio; A. G. Reed, Detroit.

Solid-section steel windows: Clarke P. Pond; Milton T. Clark; W. C. Randall; Guy D. Bayley.

Establish Research Fellowship in Metallurgy

WASHINGTON, March 23.—Opportunities are afforded students who desire a period of active training in research work along mining and metallurgical lines by a series of cooperative agreements effected between the Bureau of Mines, Department of Commerce, and various universities and colleges for the maintenance of a number of research fellowships. In a statement issued by the bureau, it is stated that for the year 1926-1927 the beneficiation of iron ore will be undertaken. Other activities also are announced. Details can be obtained from the bureau. Additional subjects suggested include the physical chemistry of steel making and the production of special steels and alloys and metallurgical refractories.

British Exports and Imports of Iron and Steel Products

WASHINGTON, March 20.—With gains in hoops and strips, wrought tubular products and tin plate, exports of iron and steel from Great Britain in February totaled 339,478 gross tons, as against 336,664 tons in January, according to a cable to the Department of Commerce from Acting Commercial Attaché Butler, London. Losses were made in exports of pig iron, ferroalloys and cast pipe and fittings.

Importation was slightly larger, totaling 228,583 tons in February, against 221,663 tons in January. The increases were mainly in pig iron and ferroalloys, hoops and strips, plates and sheets, and wrought tubes, pipes and fittings. On the other hand, iron bars, rods and angles sustained a considerable loss.

French Furnaces Operate at High Rate

WASHINGTON, March 19.—Production of iron and steel is being sustained at record levels by the French works, the January output being 763,000 metric tons of pig iron and 661,000 tons of steel ingots and castings, according to a cablegram received by the Department of Commerce from Commercial Attaché Chester Lloyd Jones, Paris. This is an advance over the output in December and in the case of pig iron constitutes a new high record.

Has Process for Forming Metal Products in Metal Molds

Jose Merle, who was chief inspector in the United States for the French High Commission during the war, has received patents in this country, as well as in several foreign countries, on a process for forming metal products by means of permanent molds, the metals being poured into the molds in a liquid or plastic state. Mr. Merle claims for his process that it is adaptable to iron and steel, alloys, copper, bronze, nickel, tin, lead and other metals. He is leaving New York the latter part of this month for Mexico, where a patent application is pending, and upon his return a few weeks later he will make his headquarters temporarily at the office of the Incandescent Lamp Service Co., 44 Whitehall Street, New York.

Fewer Stokers Sold

February sales of mechanical stokers, as reported by the Department of Commerce, numbered 83 units of 33,141 hp. Except for August, this is the lowest figure in more than a year. It compares with 36,913 hp. in January and with 46,298 in February of last year.

FABRICATED STEEL

February Bookings 61 Per Cent of Capacity, 2 Per Cent More Than in January

WASHINGTON, March 23.—Structural steel bookings in February represented 61 per cent of capacity, according to the Department of Commerce. The computed tonnage booked was 186,050 tons, while shipments at the rate of 66 per cent were 201,300 tons. Reports were received from 179 firms.

The following table lists the statistics. For comparative purposes, the percentage figures are used to obtain a computed total for the United States, based on a capacity of 293,000 in 1924 and 305,000 in 1925 and 1926.

	Bookings			Shipments
1924	Actual Tonnage	Per Cent of Capacity	Computed Tonnage	Per Cent of Capacity
January	181,931	72	210,960	63
February	185,721	73	213,890	61
March	177,452	70	205,100	65
April	167,985	66	193,380	71
May	152,706	60	175,800	71
June	168,268	65	190,450	74
July	179,430	69	202,170	79
August	155,850	60	175,800	71
September	171,692	66	193,380	74
October	172,369	66	193,380	76
November	217,710	83	243,190	65
December	204,624	78	228,540	63
Total			2,426,040	
1925				
January	151,091	57	173,850	58
February	155,609	58	176,900	61
March	183,286	69	210,450	73
April	204,986	76	231,800	76
May	183,823	68	207,400	76
June	229,130	86	262,300	77
July	217,834	81	247,050	82
August	209,752	78	237,900	80
September	216,428	80	244,000	79
October	239,680	89	271,450	88
November	191,170	71	216,550	74
December	[1] 200,498	75	228,750	80
Total			2,708,400	
1926				
January	[2] 159,313	59	179,950	69
February	[3] 161,192	61	186,050	66

[1] Reported by 204 firms with a capacity of 268,220 tons.
[2] Reported by 194 firms with a capacity of 268,680 tons.
[3] Reported by 179 firms with a capacity of 265,385 tons.

February Sheet Shipments Exceeded Incoming Business

February was a rather light sales month with independent sheet manufacturers reporting to the National Association of Sheet and Tin Plate Manufacturers, but an active one in point of production and shipments. Production based on the association method of calculation, which is 7.65 net tons per turn on sheet mills and 22.635 net tons per turn on jobbing mills and 16 turns per week, was 100.9 per cent of the capacity possible for the number of working days in February. Shipments, which furnish the best picture of actual business, on the same basis of calculation, represented 97.6 per cent of the February capacity. With sales at 61 per cent of February capacity, it is quite evident that consumers again last month, as in January, drew against contracts with more freedom than they placed new orders. There was an excess of shipments over sales in February of 108,925 tons, and unfilled orders at the end of February were 85,321 tons less than those of a month before. The figures for February with comparisons follow:

	1926		1925	
	February	January	December	February
No. of mills	712	711	712	701
Capacity per month	396,550	420,800	433,700	386,400
Per cent reporting	75.0	74.8	74.9	73.5
Sales	181,101	253,323	319,504	235,980
Production	299,553	328,643	326,960	283,290
Shipments	290,026	333,485	293,579	255,080
Unfilled orders	523,882	609,203	677,907	565,133
Unshipped orders	113,797	110,671	126,326	105,944
Unsold stocks	51,648	55,295	39,155	53,717
Percentages to Capacity				
Sales	61.0	80.4	101.8	83.1
Production	100.9	104.4	100.7	96.5
Shipments	97.6	105.9	93.5	89.8
Unfilled orders	176.4	193.5	215.9	199.1
Unshipped orders	38.3	35.1	38.9	37.3
Unsold stocks	17.4	17.6	12.1	18.9

Lake Superior Iron Ore at 1925 Prices

Low Pig Iron Prices, Large Ore Stocks and Low Lake Levels Militated Against Advance

CLEVELAND, March 22.—Lake Superior iron ore prices that prevailed last year were reestablished March 17 by the sale of 150,000 tons by one of the leading ore firms to an important iron and steel interest. Following the establishment of prices, the same firm closed a number of other contracts and other iron ore interests booked considerable tonnage in open market sales, some of which had been pending, but the final closing of which had been awaiting definite action on prices. Altogether, substantial tonnages in open market sales have been booked since the naming of prices.

That ore prices would not be changed this year had seemed probable for several weeks. Around the first of the year there was talk of an advance, and some producers considered adding 25 cents a ton, evidently feeling that they could not expect more of an advance. Some of the independent steel companies also favored an advance of that much. However, with the steel and pig iron markets not showing so far this year, the activity that existed late in 1925, notwithstanding the continued heavy steel production, and with weakness in the pig iron market, higher prices for ore became during the past few weeks more of a hope than an expectation, and little complaint is heard from producers because no advance was made. That the Lake Superior iron ore industry is over-developed to the extent that mines can produce in excess of the demands was one factor that worked against an advance.

The reaffirmed prices for base grades of ore are: Mesabi non-Bessemer, $4.25; old range non-Bessemer, $4.40; Mesabi Bessemer, $4.40; old range Bessemer, $4.55; high phosphorus, $4.15. No changes were made in the differentials that have prevailed the past year. Up to last year there was a differential in the guarantee of iron content between Bessemer and non-Bessemer ore, but a year ago the Bessemer grade was put on a guarantee of 51.50 per cent iron natural, the same as non-Bessemer ore. Last year the base price on ore was reduced 50 cents a ton, but the cut was greater on the Bessemer grade because of the change in the differential.

The interest that made the ore sale that established prices has not been the first to name ore prices for a number of years. Neither did the inquiry of the Ford Motor Co. for 275,000 tons of ore bring out the new prices. Once or twice recently the prices for the season have been established by sales to the Ford company. The quotations to this company have been made based on the established prices.

Ore prices in 1924 and 1925 were named on the same date, April 4. When prices were adopted last year, basic pig iron was quoted at $20.50 in the Valley district, or 50 cents a ton higher than is the case at present.

In spite of the price reduction last year, there was some price cutting on ore during part of the season. However, some changes in the control of mining properties occurred, some mines supplying the open market being transferred to consuming interests, that are expected to eliminate price shading this year. Another factor for strength is the reduction in ore stocks at the mines. A year ago there were some large stocks, which have been considerably reduced.

From the standpoint of earnings, little change is looked for in the iron ore industry as compared with last year, when many mines were operated at a loss. No change is expected in miners' wages and little in the cost of supplies, so that mining companies to make a better showing than in 1925 will have to operate more efficiently or sell more ore. Much attention has been given the past two or three years to reducing production costs by increasing efficiency at the mines, and efforts in that direction will be continued. Shippers look for a good movement of ore this year, but hardly expect that the water shipments of 54,098,492 tons last year will be exceeded in 1926. The shipping season will start with more ore on hand than a year ago. At present the amount of Lake ore in furnace yards and on docks is 1,500,000 tons more than at this time last year.

There has been talk of an advance in the water rates on ore, as last year, from the earning standpoint, was unsatisfactory to some of the vessel interests, partly because the lowering of Lake levels necessitated the carrying of smaller cargoes. However, with no advance in ore prices, it seems improbable that the vessel rate on ore will be increased this season; also with further lowering of the Lake levels, smaller cargoes will have to be carried this year than last.

Improved Demand in Youngstown District

YOUNGSTOWN, March 23.—In this district, iron and steel production is responding to broadened spring requirements, in both the primary and secondary markets. This week the A. M. Byers Co., Pittsburgh, lights its Mattie blast furnace at Girard, which has been idle since Aug. 14, 1925. In the meantime, the company has largely exhausted cold iron stocks at its Girard works.

Active sheet mill capacity likewise is somewhat larger, averaging 85 per cent, with 114 of 127 mills scheduled. The Bessemer converters of the Republic Iron & Steel Co. resumed this week on a reduced schedule, operating on a single turn basis.

At its Ohio and McDonald works, the Carnegie Steel Co. is pushing for record production in March, and is operating close to 100 per cent in all departments.

The Youngstown Sheet & Tube Co. is averaging 85 per cent; the Republic Iron & Steel Co., 70 per cent; A. M. Byers Co., close to 100 per cent at its Girard plant; Trumbull Steel Co., Sharon Steel Hoop Co. and the Newton Steel Co., 95 per cent; Thomas Sheet Steel Co., 85 per cent; Falcon Steel Co. and Waddell Steel Co., 75 per cent each.

Independent bar mill schedules show some irregularity. Both strip and tin plate output is at a high rate. Of 18 Valley pipe mills, ten are rolling, while skelp mills are averaging 75 per cent.

Demands, accelerated by warmer weather, have put Truscon Steel Co. at an 80 per cent rate, against a recent 70 per cent.

Fatal Explosion at Woodward Furnace About to Be Blown Out

BIRMINGHAM, ALA., March 23.—The Woodward Iron Co.'s No. 2 blast furnace at Woodward, 10 miles west of Birmingham, was practically destroyed Saturday morning and many men killed in a most unusual accident. The furnace broke out in a terrific explosion which threw molten metal in every direction for a considerable distance. Twenty-one persons, including Superintendent Howard Mussey, were either killed outright or died of injuries. It was the first accident of the kind ever known here.

It may never be ascertained exactly what caused the disaster. There had been some trouble, due to the wearing down of the lining, and the furnace was in process of blowing out when the explosion occurred, Superintendent Mussey having been called from his home a few hours previously. The coroner's verdict was that the deaths were due to an unavoidable accident. The furnace will be rebuilt.

Bethlehem's Annual Report

Selling Prices Averaged $3.48 Per Ton Below 1924—Production Figures

The average billing prices of rolled steel and other finished products shipped by the Bethlehem Steel Corporation in 1925 were $3.48 per ton less than the average for 1924. Yet, as the annual report to the stockholders points out, 1925 brought a new record for the country in the production of steel ingots.

The total income of the corporation and its subsidiary companies was $38,988,742, as compared with $33,996,489 in 1924, as mentioned in a preliminary statement regarding the year in THE IRON AGE of Feb. 4, page 355. Interest, depletion, depreciation and obsolescence charges brought the net income to $13,858,196 in 1925 against $8,916,181 in 1924. After deducting dividends on the preferred stock, there was earned $5.30 per share of common stock in 1925, compared with $2.56 in the year preceding. The gross sales amounted to $273,025,320 in 1925 and $243,904,266 in 1924.

Cash expenditures for additions and improvements to properties during 1925 amounted to $34,466,613. The wire, rod and nail department at the Maryland plant, says the report, including also additional open-hearth furnaces, will go into operation in April or May of this year. The completion of the construction program, "involving the expenditure of more than $80,000,000 since the acquisition of the Lackawanna, Cambria and Midvale properties, has greatly strengthened the position of your corporation and added to its earning power by effecting economies in operations and by increasing substantially its finishing capacities."

In 1925 $421,139.66 was paid in pensions to retired employees as compared with $358,803.60 for the previous year. At the end of the year there were 950 retired employees on the pension list.

The rate of operation averaged 70.3 per cent in 1925 and 58.2 per cent in 1924. Last year the average number of employees was 60,098, earning 62.2c. an hour; in 1924 the number was 57,049 and the wage rate was 62.7c. Production for the last two years is given in the table.

Production, in Gross Tons

	1925	1924
Ore	5,580,362	4,753,889
Limestone	1,726,975	1,361,345
Coal	6,331,246	5,586,200
Coke	4,446,472	3,446,728
Pig iron and ferromanganese	4,027,184	3,435,011
Open-hearth, Bessemer and electric steel	5,344,625	4,419,037
Rolled steel and other finished products for sale	3,829,032	3,266,245

Midvale Co.'s Better Earnings Secured by Economies

For the Midvale Co. and subsidiary, Nicetown, Pa., the results for 1925 were better than those for 1924. The report of President A. C. Dinkey to the stockholders says that "although the price of forgings to which your plant is largely devoted has been low and the market keenly competitive, the business for the year showed a somewhat higher percentage of profit than the two preceding years, due largely to improved operating methods." Other improvements are under way for the reduction of operating costs. The consolidated profit and loss account for the year ended Dec. 31, 1925, is as follows:

Sales	$6,163,752.32
Cost	5,445,614.27
Manufacturing profit	$718,138.05
Other income	90,285.46
	$808,423.51
Deduct, provision for depreciation	414,266.95
Net profit	$394,156.56

Below is given the consolidated balance sheet as of Dec. 31:

Assets

Plant and property (less reserves for depreciation)		$11,057,711.65
Investments		98,014.00
Current assets:		
Cash in banks and on hand	$1,928,221.49	
Accounts receivable	737,566.13	
Notes receivable	12,531.86	
Inventories of raw materials, supplies, worked materials, work in process and finished products	2,301,114.48	
		4,979,433.96
Deferred charges		62,981.20
		$16,198,140.81

Capital and Liabilities

Capital stock:		
Authorized and issued — 200,000 shares without nominal or par value—opening equity		$14,574,621.02
Current liabilities:		
Accounts payable	$97,659.14	
Accrued liabilities	54,716.35	
		152,375.49
Reserves:		
Miscellaneous and operating reserves		549,921.37
Surplus:		
Balance at Jan. 1, 1925	$527,066.37	
Per annexed statement of profit and loss account	394,156.56	
		921,222.93
		$16,198,140.81

The Ashtabula & Buffalo Dock Co., a Pickands, Mather & Co. interest, has acquired the management of the new ore and coal dock of the Toledo & Ohio Central Railroad at Toledo, Ohio. Fred Burnett, who has been assistant superintendent of the company's dock at Ashtabula, has been named as superintendent of the Toledo dock.

Builds New Unit for Assembling Electric Irons and Ranges

A new four-story, brick and concrete building, with a floor space of 142,600 sq. ft., has recently been added to the Mansfield, Ohio, plant of the Westinghouse Electric & Mfg. Co. With this addition the plant now has a total floor space of 330,530 sq. ft., or seven and a half acres, devoted to the manufacturing of electric ware, hotel appliances, ranges and safety switches.

The new unit is of the most modern fireproof construction and will be devoted to the construction and assembly of ranges and electric irons. A notable feature of its interior arrangement is the continuity of operation with which products are handled. By means of ingenious conveyor systems there is a continual forward movement of material from the steel storage room to the section where finished products are crated for shipment.

Pittsburgh Coal Co. Production Is Gaining

The Pittsburgh Coal Co., which last fall shut down all of its 54 mines because it could not pay the Jacksonville wage scale and operate profitably, now has eight mines in operation and more than 1800 men at work under the November, 1917, wage scale, which, roughly, is about one-third less than called for by the scale of the United Mine Workers of America. At the lower rate of pay the company is able to meet market conditions as to prices and is giving the men steady work. The mines working are the Midland, near Canonsburg, Pa.; Montour No. 10, at Library, Pa.; Warden, near McKeesport, Pa.; Banning No. 2, near West Newton, Pa.; Banning No. 1, Euclid, near West Newton, Pa.; and Dickson, near Imperial, Pa. The company reports that large numbers of former employees are asking for work at the 1917 scale.

Slackening Automobile Production

There are signs of a slackening of automobile production, according to *Automotive Industries*. It seems generally agreed, it says, that expansion of production has gone far enough and that the time has arrived to allow retailers to cut down some of the stocks they have accumulated. Truck and bus production and sales are continuing at record levels for most of the manufacturers. This branch of the industry never had a better outlook than it has now. A reaction against undue liberality in time sales terms has definitely set in. The alarming growth of repossessions in the late fall and early winter was the prime reason for the tightening of terms.

SCRAP DEALERS MEET

Freight Rates and Classification Discussed at Annual Convention in New York

The thirteenth annual convention and banquet of the National Association of Waste Material Dealers, New York, was held March 16 and 17 at the Hotel Astor, New York. Following the general session of the convention, various divisions met separately. The iron and steel meeting discussed freight rates and the results of the meeting with the Trunk Line and Central Freight Association in Pittsburgh last July. The desirability of a reduction of the rates from southern to northern points and between points in the South was brought out, but thus far the association has been unable to bring the Southern railroads to a voluntary reduction of their charges. It has been suggested by the association that a conference of carriers, consumers and dealers would contribute to a satisfactory settlement of the question, as well as a better definition of scrap iron and steel than now exists.

The metal division engaged in an extended discussion of metal classification. The propriety of including tinned or nickel plated brass tubing under the classification of heavy yellow brass was discussed, and it was suggested that the word "clean" should be eliminated or the words "commercially clean" be inserted for clarity. Weigher's weights were also discussed.

At the banquet held on the evening preceding the convention, more than 600 were in attendance.

Egmont L. Frankel, Frankel Brothers, Toronto, Ont., was elected president for a second term. Henry Lissberger, Federated Metals Corporation, New York, was elected first vice-president; G. H. Rady, E. J. Keller Co., New York, second vice-president, and E. B. Friedlander, Loewenthal Co., Chicago, third vice-president. Charles M. Haskins is secretary and treasurer. Iron and steel scrap dealers on the board of directors of the association include George B. Doane, Perry, Buxton, Doane Co., Boston; Harry R. De Groat, A. M. Wood Co., Philadelphia, a former president of the association; Joseph Michaels, Hymen-Michaels Co., Chicago, and D. A. Singer, Singer Iron & Steel Co., Houston, Tex. Another member of the board is R. W. Phillips, E. I. du Pont de Nemours & Co.

Chicago was selected for next year's convention, provided the constitution and by-laws of the association permit a change from New York.

American Refractories Institute Annual Meeting in Philadelphia

The annual meeting of the American Refractories Institute will be held at the Bellevue-Stratford Hotel, Philadelphia, May 12. Plans are under way to have a number of papers presented by technical and practical men of the industry, and floor discussions of these papers will be invited. In addition, several prominent speakers will be asked to talk on topics of the day. Non-members are invited to attend both the business session and banquet, which will be held in the evening.

National Association of Foremen—A New Organization

The National Association of Foreman, organized in October, 1925, will hold its first annual convention at Springfield, Ohio, in May, 1926. The association is an outgrowth of a movement which started at Dayton, Ohio, in 1918, when a Y.M.C.A. evening class in foremanship training developed into the Dayton Foremen's Club. Similar clubs were organized in other cities, and subsequently the Ohio Federation of Foremen's Clubs was formed. The *Foremen's Magazine* was then organized as the official organ of the federation, later serving in the same capacity for the national body. A 16-page booklet entitled "The National Association of Foremen" presents the history, purpose, constitution and accomplishment of the body. T. B. Fordham, works manager Delco-Light Co., Dayton, is president of the association, and V. H. Whipple, industrial secretary Y.M.C.A., Dayton, is secretary.

Arranging for Anglo-American Screw Thread Conference

A meeting of the agenda committee, made up of representatives of the American Engineering Standards Committee and of the National Screw Thread Commission, was held at the Engineering Societies Building, New York, March 16.

The purpose of the meeting was to arrange a tentative program for the Anglo-American conference on screw threads, which will be held in New York about the middle of April. At the latter conference, which will be attended by representatives of British, Canadian and Australian standardizing bodies, the possibility of unifying the American and British screw thread systems will be discussed.

Simplification in Sheet Metalware

Reduction of household sheet metalware by nearly 25 per cent in varieties and sizes was adopted March 12 under the auspices of the Division of Simplified Practice of the United States Department of Commerce. The recommendations, following more than 18 months of committee work, were presented to the conference by Warren S. Smith, secretary of the Sheet Metalware Association. The industry represents about $50,000,000 of annual business. Reductions made are as follows:

	Numbers Eliminated	Of Total of
Deep stamped ware	78	283
Shallow stamped ware	5	107
Pieced tinware	91	301
Heavy tinware	9	52
Japanned ware	45	180
Galvanized ware	52	231
Total	281	1,154

Machine tool business dropped off in February from January, so that according to the records of the National Machine Tool Builders' Association, unfilled orders at the end of February amounted to 1.85 months of recent average shipments against 1.91 months orders at the end of January.

COMING MEETINGS

April

American Oil Burner Association. April 6 to 8. Third annual convention and exposition. Book-Cadillac Hotel, Detroit. Leod D. Becker, 350 Madison Avenue, New York, secretary.

National Metal Trades Association. April 15 and 16. Twenty-eighth annual convention. Hotel Astor, New York. J. E. Nyhan, Peoples Gas Building, Chicago, secretary.

American Welding Society. April 21, 22 and 23. Annual meeting. Engineering Societies Building, New York. Miss M. M. Kelly, 33 West Thirty-ninth Street, New York, secretary.

Foundry Equipment Manufacturers' Association. April 22 and 23. French Lick Springs, Ind. H. Cole Estep, Penton Publishing Co., Cleveland, secretary-treasurer

American Electrochemical Society. April 22 to 24. Annual meeting, Chicago Beach Hotel, Chicago. Colin G. Fink, Columbia University, New York, secretary

National Supply and Machinery Distributors' Association. April 26, 27 and 28. Twenty-first annual convention, Ambassador Hotel, Atlantic City, N. J. George A. Fernley, 505 Arch Street, Philadelphia, secretary-treasurer.

National Foreign Trade Council. April 28, 29 and 30. Thirteenth annual convention, Charleston, S. C. O. K. Davis, India House, Hanover Square, New York, secretary.

ESTABLISHED 1855

THE IRON AGE

A. I. FINDLEY, *Editor* W. W. MACON, *Managing Editor*

Member of the Audit Bureau of Circulations and of Associated Business Papers, Inc.

Published every Thursday by the IRON AGE PUBLISHING CO., 239 West 39th Street, New York

C. S. BAUR, *General Advertising Manager*

F. J. Frank, *President* George H. Griffiths, *Secretary*

Owned by the United Publishers Corporation, 239 West 39th Street, New York. Charles G. Phillips, *Pres.* A. C. Pearson, *Vice-Pres.* F. J. Frank, *Treas.* H. J. Redfield, *Secy.*

BRANCH OFFICES—Chicago: Otis Building. Pittsburgh: Park Building. Boston: 425 Park Square Building. Philadelphia: 1402 Widener Building. Cleveland: Guardian Building. Detroit: 7338 Woodward Ave. Cincinnati: First National Bank Bldg. Buffalo: 833 Ellicott Square. Washington: 536 Investment Building. San Francisco: 320 Market St. London, Eng.: 11 Haymarket S.W.1.

Subscription Price. United States and Possessions, Mexico, Cuba, $6.00; Canada, $8.50; Foreign, $12.00 per year. Single copy 25 cents.

Entered as second-class matter, June 18, 1879, at the Post Office at New York, N. Y., under the Act of March 3, 1879.

PRINTED IN U. S. A.

A European Rail Association

CABLES from London and Paris bring reports of the formation of an international steel rail association, and there is little question of the final success of the negotiations in progress for some months, so far as concerns the active cooperation of rail manufacturers in Great Britain, Germany, France, Belgium and Luxemburg. The report current in Great Britain, as indicated elsewhere by our London correspondent, is that the six countries which lead in the production of steel rails will be paired for convenient administration of the plan—the United States with Great Britain, Germany with France and Belgium with Luxemburg. It is added that, while quotas and markets are association matters, details of prices will rest largely with each group in its particular sphere of influence.

There is little reason to believe that American rail manufacturers have lately reversed the attitude they have taken on the various occasions since the war in which they have been solicited by British steel manufacturers to enter into an agreement designed to stabilize prices in the international steel trade. They have made it plain that they were not in position to join such an association, but they have expressed approval of the efforts of British and Continental steel manufacturers to get a fair profit on their export shipments. That the United States has made a place for itself in the international steel trade has long been accepted by British steel makers. In the year following the Armistice, grave fears were expressed by a number of them lest, with their high labor and fuel costs, American steel in large quantities would pour in upon them. It took time to demonstrate that manufacturers here were not planning a campaign of dumping to maintain the place in the export steel trade which had come to them through the dislocations of war.

It is not improbable that in the conduct of the new rail association the counsels of British members will be influential with their associates in the four Continental countries as to the futility of destructively competing against the United States in the international rail market.

Before the war the combined rail exports of the United States, Great Britain, Germany, Luxemburg, France and Belgium were running from 1,500,000 to 1,750,000 tons a year. In no year since the war have they exceeded 1,100,000 tons, and the average for 1923, 1924 and 1925 was about 1,050,000 tons. Besides this falling off of one-third from the pre-war volume, there have been notable changes in the distribution of the business. In 1913, the United States had 452,000 tons, Great Britain and Germany (including Luxemburg) 500,000 tons each, France 75,000 tons and Belgium 164,000 tons. Last year the United States had but 151,000 tons, Great Britain 207,000 tons, Germany 319,000 tons, France 227,000 tons, and Belgium 192,000 tons. From 27 per cent in 1913, the share of the United States was but 14 per cent of a much smaller total last year, while France and Belgium quite exceeded their pre-war totals and Germany was in the way of regaining her pre-war position.

What may come out of the new association, if it can avoid the pitfalls of other efforts for cooperation between British and Continental steel makers, is some increase in the British and American percentages of the export total, and for the Continental mills a fair profit on their rail business—something conspicuous by its absence in the rough-and-tumble competition of the past two years.

Rolled Steel Imports Not Large

WHILE iron and steel imports in February, at 100,273 tons, provided the largest total since March, 1923, the same cannot be said of rolled and finished iron and steel. The February total of 16,076 tons of such finished material was the lowest since a year ago and may be compared with the 1925 monthly average of 23,640 tons. Pig iron provided 59,122 tons of the large February influx—the largest pig iron imports in 35 months. Scrap accounted for 12,177 tons more; cast iron pipe, for 3444 tons; ferroalloys, for 5194 tons. Only in structural shapes (5246 tons) and steel bars (4472 tons) did any finished item exceed 1300 tons.

As pointed out in our previous references to the entrance of foreign finished steel to Atlantic, Pacific and Gulf ports, the constant tendency is to exaggerate the amount of these shipments and

their effect on the domestic market. The February rate of finished steel imports would mean something over 200,000 tons in a year, or something less than two-thirds of one per cent of the finished steel shipped from domestic mills in 1925.

High Cost of Making Steel at a Profit

SALIENT points in the Steel Corporation report for 1925 give emphasis to THE IRON AGE's front cover message of Jan. 7, 1926, entitled "Wanted: A Fair Profit." There is a passage also in the Bethlehem Steel Corporation report, just made public, which does the same thing.

In the 24 calendar years covered by the Steel Corporation's reports, 1925 stood sixth in earnings and output. The five years that were better in both respects were 1916, 1917, 1918, 1920 and 1923. In point of "earnings per ton," on the other hand, 1925 stood fourteenth. The conventional method is to divide the tons of steel shipped into the earnings. It may be a surprise to many to be told that only one of the corporation's first nine years, 1904, showed lower per ton earnings than 1925. As the earnings in 1925 were not far from the largest that may be expected unless under exceptional conditions, it is notable that after payment of dividends an appropriation of but $25,000,000 for improvements left only $4,801,801 to be carried to undivided surplus. Particularly in view of the high level to which construction costs have mounted, this is very moderate.

As the report points out, "under prevailing price indexes for labor, material, equipment, etc., and modern standards of construction, the investment cost for replacing a producing capacity equal to that discarded [as at Columbus, Niles, Chillicothe and other points in the past year] totals from two to four times the investment cost of the old." That is to say, a blast furnace or an open-hearth furnace of today's type is a far costlier affair, all apart from the higher labor and material costs of post-war times, than was the "modern" blast furnace or open-hearth furnace of 15 to 20 years ago.

The country needs a capable and efficient steel industry as much as it needs good railroad facilities and other material things, and indeed it could not have the other things without steel. Since outside capital is not attracted to the steel industry, it is to the public interest that the existing steel producers—the independents, of course, as well as the Steel Corporation—be afforded returns that will enable them to grow and meet the natural steel consuming requirements.

The $25,000,000 appropriated last year by the corporation is 1.47 per cent of the property account, $1,692,197,704, and undoubtedly the property account falls far short of the cost of duplication, assuming duplication possible at all.

That the corporation would have been compelled to pay much of its common stock dividends of 1925 out of surplus, had it not found ways of reducing the cost of its product—not by cents but by dollars per ton—appears in the statement of Chairman Gary that because of sharp competition the average price received for the finished steel shipped last year was $3.80 per ton less than in the preceding year. President Grace of the Bethlehem Steel Corporation in like manner points to new economies in production as the steel industry's only salvation in such a year of intense price competition as was 1925. He reports that the average billing prices of rolled steel and other products shipped by his company in 1925 were $3.48 per ton less than the average for 1924 and $7.48 per ton less than the average for the first quarter of 1924.

For both the Steel Corporation and the Bethlehem Steel Corporation these economies of production have been achieved by the outlay of many millions in making active plants more effective and in building anew for the replacement of plants marked for abandonment. The Steel Corporation's report states that $80,000,000 will be expended in 1926 for additions and betterments, while in the case of Bethlehem the three-year program of new construction completed in 1925 represented an outlay, also, of no less than $80,000,000.

Workers Not for Paternalism

AGITATION of non-contributory old-age pensions, unemployment insurance and similar legislation has been active in various States this winter, thus far, with little success. The more radical proponents have plans which even go the British system one better in liberality to beneficiaries, and their arguments make an appeal to certain elements of the population. Luckily American experience has been accumulating and its results are being brought to the attention of legislators in an effective way.

Extreme paternalists would insure to all employed persons a certain income during such times as they are out of work and a pension in their old age, without requiring the recipients to pay anything at any time. Some go so far as to include every one, men and women, in old age pensions, whether or not they were ever engaged in productive occupations. Others would restrict the operation of the proposed statutes to the industries, and would levy the larger part of the heavy costs upon the owners and none upon the workers. They would act similarly with unemployment, putting the financial burden upon the owners or upon the State, or both. Still others, less radical, would adopt the British system, dividing the cost among employer, employee and the State. There is a great diversity of thought on the subject, much of it menacing in the two elements of compulsion and non-contribution.

The great insurance companies which have written industrial group policies have now a long experience and can speak with authority. Such policies total in face value over three billions of dollars, insuring nearly a million of men. The companies have tried out on a great scale the non-contributory system, where the owners carry the whole burden, and pronounce it unscientific and unsatisfactory. The employee should share in the costs, the experts declare. He appreciates his protection and that of his family. He gets more by paying his share, for the modern group policy in which he participates insures not only against death but against sickness and accident, the last named

wholly independent of workman's compensation and including accidents outside of industry. The companies have gone still further, developing a system under which a worker, at small cost, may accumulate an old age annuity.

Those who advocate radical legislation in behalf of employees often lack in understanding of those they would like to help. Their appeal is not to the first-class American workman, but to the type whose motto is "The world owes me a living." The average worker is not improvident, as officers of savings banks well know. He is glad to pay his way. In fact, he would prefer not to have his employer pay it for him. Insurance which protects him against unemployment, provides him an income in his old age, and takes care of his family in case of his death is something to which as a rule he wants to contribute his full share.

No Burden of Security Issues

REFERENCE was made last week in this department of THE IRON AGE to the point that the stock market break of three weeks ago had not adversely affected the volume of business as have various similar breaks in the past, the inference being that business, as such, has been conducted along sound and conservative lines. There has been a widespread feeling that the economic situation is not perfect, and as disturbance can be averted or mitigated by timely action the search for unsound conditions should be prosecuted. One method is by a process of elimination.

A summary of facts as to issues of securities given in the current Federal Reserve Bulletin, and therefore altogether trustworthy, shows that capital issues have not laid a burden upon the public and suggests further that the new issues have been running along lines least likely to create disturbance in future by impairment of earning power.

As to the total issue of securities, the Federal Reserve Bulletin says:

> New issues of securities in recent months have been in a larger amount than in any other period since the war, and total flotations in 1925 were in larger volume than in any earlier year except 1917, 1918 and 1919, when the United States Government borrowed heavily for war purposes. Total issues in 1925, exclusive of refunding issues, aggregated more than $6,200,000,000, and were $600,000,000 larger than in 1924, and about $2,000,000,000 larger than in 1923.
>
> That these issues were not in excess of the funds available for their purchase is indicated by the continued advance in the prices of bonds and other corporate securities. In February, 1926, bond prices were at the highest level since the middle of 1917, and bond yields, which represent long-term interest rates, were lower than at any time in about nine years.

In other words, no special inducements have had to be offered to get the public to invest in new issues. There has been a natural flow of capital, due largely to surplus income. Thus no strain has been created in this direction.

Light is thrown also on the subject we referred to a fortnight ago, that of a depression being brought about by too much construction, anticipating by too long a time a future earning power, with resulting disappointment and a wait until the country grows up to the facilities.

New capital issues by corporations, as given in the Federal Reserve Bulletin, have been as follows, as to totals, while two of the various lines are shown separately:

New Capital Issues of Corporations

	Total	Railroads	Public Utilities
1921	$1,823,000,000	$353,000,000	$492,000,000
1922	2,336,000,000	524,000,000	726,000,000
1923	2,702,000,000	465,000,000	888,000,000
1924	3,322,000,000	780,000,000	1,326,000,000
1925	4,100,000,000	380,000,000	1,496,000,000

In the first place, as to railroad issues the general smallness is notable as well as the drop in 1925, when, nevertheless, the railroads have been fairly heavy spenders and have brought their properties into very good condition. In the second place, the heavy issue by public utilities is to be observed, and that seems safe, for of all productive enterprises it is doubtful if any class is better able to measure the trends and gage the future than the public utilities. Public service companies have much data available and they have reduced the study of their data to an exact science.

What we have left after these two important considerations is the great question whether the public, individually and in sections, may not have been spending too freely and encumbering too much the future.

AS an illustration of the extreme conservatism of the Steel Corporation's accounting methods, during the war there was set up an inventory reserve, first stated as being "for account of actual cost or market value of stocks in excess of normal prices therefor." In other words, the allowance was intended to take care of post-war liquidation. This reserve reached its maximum at the end of 1920, when it amounted to $95,000,000. It has since been declining, but at the end of 1924 it was still $50,391,232, while on Dec. 31, 1925, according to the Steel Corporation's report just published, it stood at $50,143,280. Less than half of the amount in the fund at the end of 1920 has had to be drawn out, so that there is more than ample provision for anything that can conceivably occur in future that would make demands on such a fund.

Loss of Eyes in Industrial Accidents

The loss of eyes in industrial accidents cost the employers of Pennsylvania more than $800,000 during the last year and more than $8,000,000 since the enactment of the State workmen's compensation law, according to an analysis of the annual report of the Pennsylvania Department of Labor and Industry made by Lewis H. Carris, managing director of the National Committee for the Prevention of Blindness, 370 Seventh Avenue, New York.

The Pennsylvania report shows that 538 eyes were lost in industry in that one State last year and that a total of $800,598 was paid to workmen as compensation for this loss. At the same time a total of $793,952 was paid for the loss of 97 legs, 73 arms and 190 hands.

CORRESPONDENCE

Corn Farmers and Tractors

To the Editor:—The editor of an Australian farm paper recently wrote a very excellent reply to the argument Mr. Cavert made in favor of retaining horses for farm operations (THE IRON AGE, Feb. 11). I believe most American farmers will agree with the Australian's remarks, as follows:

> Some people are trying to convince us that while it is quite right for people in the city to have the latest labor saving machinery and motor cars, it is not just the thing for country folks to adapt themselves to modern conveniences, such as farm tractors and the like.
>
> A state of society which declares that there shall be labor saving implements and home comforts for city folks and old dobbin and candles for the country folks can never hope to build up a prosperous and contented agriculture.
>
> The whole trend in modern industry, of course, is elimination of drudgery. Man power and horse power have been found too expensive to be employed in tasks that can be done by machines. Machines have improved the product, increased the production, and reduced the working cost in practically every industry to such an extent that individuals who have been tardy in adopting improved methods of production have been forced to the wall by their progressive competitors.

The Australian editor might well have added that mechanical power will cut cost on the farms just as it will cut cost in a factory. No factory superintendent would today consider for a moment furnishing power for the operation of his machines through the use of animals, and there is no better reason for using such an antiquated, inefficient and altogether unsatisfactory form of power for farm work than for factory work. As a matter of fact, factories could use animal power more efficiently and economically than farms, for factories could use the work animals every day of the year, while farming is a seasonal proposition which at best uses its power for only about 100 working days, and any form of power which incurs cost every day of the year, whether it is working or not, is altogether unsuited for farm work.

The argument that farmers have reduced the market for their crops by reducing the number of horses will not bear analysis. Horses have always furnished the poorest market for farm crops which farmers have ever supplied. Any other farm animal has paid much better prices for the crops than have horses, no matter whether the latter were sold or whether they were used to develop power.

A casual reference to official statistics on the prices of farm animals for the past 25 years will show that the above statement is true. Recent statistics also show that the number of hogs and cattle on farms has likewise decreased during the last year or two, which naturally had quite an effect in reducing the demand for corn and other feed. If it is desirable for American farmers to increase the market for farm crops by increasing the quantity of livestock on farms, it certainly would be more logical and more profitable to increase the number of animals which pay the highest prices for the feed which they consume.

Corn and other farm products are the most expensive forms of fuel which farmers or manufacturers could use to develop power. If corn were cheaper for fuel than coal or oil, manufacturers would be buying the corn instead of coal and oil for use in their power plants, for it could be converted into power more efficiently and economically when burned under a boiler than when fed to a horse.

The argument that horses do hauling cheaper in New York and other large cities than it can be done with motor trucks is rather specious. The present situation is very much like trying out electric street cars on the same track where horse cars are being used, and then reporting that the electric cars are a failure because they travel no faster than the horse cars. The few horse-drawn vehicles still on our city streets are continually interfering with the free movement of all other kinds of traffic, which normally would travel three or four times faster than the horses. This situation cannot last. It is preposterous to believe that a few hundred unprogressive horse users will be permitted to hold up the progress of an entire city very much longer. If the rate of decrease which has been maintained for the past ten years in our city continues only a few years longer, there will be no horse-drawn vehicles in use in our cities. However, even before horses are eliminated by that process, ordinances prohibiting their use on city streets are to be expected in much greater number than at present.

If it is desirable to create a new outlet for any of our farm crops, it is possible with present known methods to produce alcohol from the corn grain or the corn fodder, as well as most other farm crops, leaving a considerable quantity of palatable and nourishing feed for the stock and at the same time furnishing more fuel than the farmer could use in his tractor, truck and automobile; but before this is done it will, of course, be necessary to have some of the restrictions regarding alcohol manufacture removed.

ARTHUR WATTS.

Chicago, March 13.

Worcester Metal Trades' Officers

Worcester Branch, National Metal Trades Association, held its twenty-fifth annual meeting at Worcester, Mass., March 17, and elected officers for the year as follows: Honorary president, George I. Alden, Norton Co.; president, A. Sherman Miller, Eastern Bridge & Construction Co.; vice-president, John C. Spence, Norton Co.; secretary, Donald Tulloch; treasurer, Arthur W. Beaman, Stockbridge Machine Co.; board of directors, H. H. Wright, M. S. Wright Co.; Fred S. Morton, Matthews Mfg. Co.; F. W. McIntyre, Reed-Prentice Co.; Roger N. Heald, Heald Machine Co.; Philip M. Morgan, Morgan Construction Co.; William Arter, Arter Grinding Machine Co., all of Worcester; F. A. Ball, L. S. Starrett Co., Athol, Mass.; J. R. Rogers, Rogers Drop Forge Co., Rochdale and Worcester; Richard Fosdick, Fitchburg Steam Engine Co., Fitchburg, Mass.; W. W. Shuttleworth, Warren Steam Pump Co., Warren, Mass.; E. J. McKnight, L. G. McKnight Co., Gardner, Mass., and Charles A. Clarke, Universal Boring Machine Co., Hudson, Mass. The advisory board of past presidents consists of John W. Higgins, Worcester Pressed Steel Co., Jerome R. George, Morgan Construction Co.; William H. Gates, Baldwin Chain & Mfg. Co., and Albert J. Gifford, Leland-Gifford Co., all of Worcester.

Fuels Used in Industry

In a recent review of power progress during 1925 Barton R. Shover, consulting engineer, Pittsburgh, distributes the fuels used in industry in accordance with the following percentage relations:

Manufactured gas	2
Natural gas	4
Anthracite coal	5
Oil	12
Coke	14
Bituminous coal	63

Distributing the oil fuel among the 13 industries using the largest quantity thereof, he expresses the totals in millions of barrels as follows: steel industry, 14; car builders, foundries, sugar refining and smelting and refining, 5 each; cement, ice manufacturing, paper and slaughtering, 3 each; shipbuilding, automobile manufacture, copper and brass industry and chemical industries, 2 each.

Iron and Steel Markets

March Promises a Production Peak

Indications of Some Easing Off in April in View of Heavy Shipments—Ore Price Same as for 1925—European Rail Association Formed

WITH the opening of the year's second quarter only a week off, a time often marked by preparations for greater activity, the steel trade shows no marked turn. Though a substantial loss in unfilled tonnage is already indicated for March, the fact that three weeks of the month have brought a gain in new business, as compared with the like period of January or February, is cited as evidence of sustained consumption.

The high rate of steel production that has promised to make March a notable month keeps up, but there is doubt of its maintenance in April. While buyers have been taking out all the steel ordered for first quarter delivery, there are signs that in some lines these shipments will cover requirements well into April.

In the case of the Steel Corporation the very high rate of operations this month, 97 per cent being reached lately, is due in part to preparations for expanding spring demand for the products of its tin plate, wire and pipe subsidiaries.

Railroad and building consumption of steel holds up to the exceptional rate of the past three months. Some curtailment of automobile output has come, and there are more cases in which installment purchases are not being completed. Agricultural implement operations are slighly less here and there, after the busiest season since 1920.

Both at Chicago and Pittsburgh the week has brought good orders for track supplies and other railroad steel. The M. K. & T. has divided 375,000 tie plates between Alabama and Chicago mills.

Structural steel awards were about 33,000 tons, including 3200 tons for an Oregon pipe line. A New York hotel project, now being bid on, will take 9500 tons. About 10,000 tons of concrete reinforcing bars are pending.

Fabricated steel lettings for the first two months of the year, according to the Department of Commerce, called for 366,000 tons. The January-February business was 352,000 tons last year and 424,000 tons in 1924.

The story of sheets for February, according to records of the independent manufacturers, is as follows: Sales, 181,000 tons, or 28 per cent off from January; production, 300,000 tons, or 9 per cent less; shipments, 290,000 tons, or 13 per cent less; unfilled orders, 524,000 tons, or 14 per cent less.

Some makers of alloy steel are not booked so far ahead as they were a few weeks ago, owing largely to the present cautious buying policy of automobile makers.

That the five rail producing countries of Europe have organized an association is generally accepted in the export trade as a fact, German and French makers constituting the pivotal group. While American makers withheld membership, Continental mills are evidently proceeding on the belief that this country will not embark on destructive competition to annex new territory.

Confirming the forecast of early March, Lake Superior ore prices of 1925 were reestablished on March 17 at $4.25 for Mesabi non-Bessemer, by a sale of 150,000 tons to an Ontario steel company. The Ford inquiry for 275,000 tons, which might have developed the 1926 price, is still pending. Shipments are not likely to equal the 54,000,000 tons of last year, as 1,500,000 tons more ore is now on hand than was held a year ago.

Eastern sales stand out in the general quietness of the pig iron market. On 25,000 tons of basic in the Philadelphia district, the price was 50c. a ton below the market of the previous week. A 5000-ton sale to a Newark foundry was at a like concession. Elizabeth, N. J., reports the largest sale of Dutch iron yet made, 7000 tons.

With ore unchanged and with coke considerably lower, buyers of foundry pig iron are making no haste to cover, some Ohio quotations showing less firmness.

A development of the past week is that a considerable part of the Connellsville production of blast furnace coke is now under contract. Prices above and below $3.25 are reported, but that is the average, as against $3.75 to $4.10 for the first quarter.

French cast iron pipe continues to be offered at low prices, but municipalities are slow in making awards to a foreign bidder. Albany, N. Y., placed 1500 tons with the Pont-a-Mousson works.

In the ferromanganese drive the price has dropped to $90 this week, Pittsburgh furnishing some good orders. Many users are now covered for most of the year.

Pittsburgh

Another Decline in Unfilled Tonnage in Sight but Mill Prices Are Steady

PITTSBURGH, March 23.—In this market it seems to be the case of "sufficient unto the day are the orders thereof." The common report is that business is good, but that there is not much ahead. It is now quite evident that March will show a further substantial loss in unfilled tonnages. There continues to be a higher rate of steel plant operation, but its explanation is found in the fact that buyers have been taking out all the steel ordered for first quarter delivery. Contracts for that period, it is now apparent, were somewhat in excess of the actual requirements of buyers, who when they placed first quarter business late last year made provision for a possible spurt in consumption that failed to materialize. The excess of purchases over real requirements gives buyers a supply of steel that will carry them into April, and this probably explains why there has been no rush to get under cover for second quarter needs.

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics
At Date, One Week, One Month, and One Year Previous

For Early Delivery

Pig Iron, Per Gross Ton:	Mar. 23, 1926	Mar. 16, 1926	Feb. 23, 1926	Mar. 24, 1925
No. 2X, Philadelphia‡	$23.26	$23.26	$23.76	$24.26
No. 2, Valley furnace†	20.50	20.50	20.50	21.00
No. 2, Southern, Cin'ti†	25.69	25.69	25.69	24.05
No. 2, Birmingham, Ala.†	22.00	22.00	22.00	20.00
No. 2 foundry, Chicago*	23.00	23.00	23.00	24.00
Basic, del'd, eastern Pa.	*21.75*	22.25	23.00	23.75
Basic, Valley furnace	20.00	20.00	20.00	21.00
Valley Bessemer, del'd P'gh	22.76	22.76	22.76	23.76
Malleable, Chicago*	23.00	23.00	23.00	24.00
Malleable, Valley	20.50	20.50	20.50	21.50
Gray forge, Pittsburgh	21.76	21.76	21.76	22.26
L. S. charcoal, Chicago	29.04	29.04	29.04	29.04
Ferromanganese, furnace	*90.00*	95.00	115.00	115.00
Rails, Billets, etc., Per Gross Ton:				
O.-h. rails, heavy, at mill	$43.00	$43.00	$43.00	$43.00
Light rails at mill	35.00	35.00	36.00	40.32
Bess. billets, Pittsburgh	35.00	35.00	35.00	37.00
O.-h. billets, Pittsburgh	35.00	35.00	35.00	37.00
O.-h. sheet bars, P'gh	36.00	36.00	36.00	38.00
Forging billets, base, P'gh	40.00	40.00	40.00	42.50
O.-h. billets, Phila.	40.30	40.30	40.30	41.67
Wire rods, Pittsburgh	45.00	45.00	45.00	48.00
	Cents	Cents	Cents	Cents
Skelp, gr. steel, P'gh, lb.	1.90	1.90	1.90	2.10
Finished Iron and Steel,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia	2.22	2.22	2.22	2.28
Iron bars, Chicago	2.00	2.00	2.00	2.10
Steel bars, Pittsburgh	2.00	2.00	2.00	2.10
Steel bars, Chicago	2.10	2.10	2.10	2.20
Steel bars, New York	2.34	2.34	2.34	2.44
Tank plates, Pittsburgh	1.85	1.85	1.80	2.00
Tank plates, Chicago	2.10	2.10	2.10	2.30
Tank plates, New York	2.14	2.14	2.09	2.34
Beams, Pittsburgh	1.90	1.90	1.90	2.10
Beams, Chicago	2.10	2.10	2.10	2.30
Beams, New York	2.24	2.24	2.24	2.44
Steel hoops, Pittsburgh	2.50	2.50	2.50	2.40

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.
†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

Sheets, Nails and Wire,	Mar. 23, 1926	Mar. 16, 1926	Feb. 23, 1926	Mar. 24, 1925
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 28, P'gh	3.25	3.25	3.25	3.40
Sheets, black, No. 28, Chicago dist. mill	3.45	3.45	3.45	3.70
Sheets, galv., No. 28, P'gh	4.50	4.50	4.50	4.60
Sheets, galv., No. 28, Chicago dist. mill	4.70	4.70	4.70	4.85
Sheets, blue, 9 & 10, P'gh	2.50	2.50	2.50	2.70
Sheets, blue, 9 & 10, Chicago dist. mill	2.60	2.60	2.60	2.80
Wire nails, Pittsburgh	2.65	2.65	2.65	2.85
Wire nails, Chicago dist. mill	2.70	2.70	2.70	2.95
Plain wire, Pittsburgh	2.50	2.50	2.50	2.60
Plain wire, Chicago dist. mill	2.55	2.55	2.55	2.70
Barbed wire, galv., P'gh	3.35	3.35	3.35	3.55
Barbed wire, galv., Chicago dist. mill	3.40	3.40	3.40	3.65
Tin plate, 100 lb. box, P'gh	$5.50	$5.50	$5.50	$5.50
Old Material, Per Gross Ton:				
Carwheels, Chicago	$17.00	$17.00	$17.00	$16.50
Carwheels, Philadelphia	17.50	17.50	17.50	18.50
Heavy steel scrap, P'gh	17.50	17.50	17.00	18.00
Heavy steel scrap, Phila.	**16.50**	16.00	15.50	16.00
Heavy steel scrap, Ch'go	14.00	14.00	13.75	16.00
No. 1 cast, Pittsburgh	17.00	17.00	17.00	18.00
No. 1 cast, Philadelphia	17.50	17.50	17.50	18.00
No. 1 cast, Ch'go (net ton)	17.00	17.00	17.00	18.00
No. 1 RR. wrot., Phila.	17.00	17.00	17.50	19.00
No. 1 RR. wrot. Ch'go (net)	13.00	13.00	12.75	14.50
Coke, Connellsville,				
Per Net Ton at Oven:				
Furnace coke, prompt	$3.00	$3.00	$3.75	$3.25
Foundry coke, prompt	*4.25*	4.50	4.75	4.00
Metals,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York	14.25	14.25	14.50	14.37½
Electrolytic copper, refinery	*13.87½*	13.95	14.00	14.00
Zinc, St. Louis	**7.42½**	7.35	7.75	7.30
Zinc, New York	**7.77½**	7.70	8.10	7.65
Lead, St. Louis	**8.10**	8.00	8.92½	8.65
Lead, New York	**8.37½**	8.20	9.15	8.90
Tin (Straits), New York	*65.00*	66.00	64.75	53.62½
Antimony (Asiatic), N. Y.	**20.50**	17.00	21.00	14.00

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

THE IRON AGE Composite Prices

Finished Steel

March 23, 1926, 2.431c. Per Lb.

One week ago	2.431c.
One month ago	2.424c.
One year ago	2.531c.
10-year pre-war average	1.689c.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 88 per cent of the United States output of finished steel.

	High		Low	
1926	2.453c.,	Jan. 5;	2.424c.,	Feb. 9
1925	2.560c.,	Jan. 6;	2.396c.,	Aug. 18
1924	2.789c.,	Jan. 15;	2.460c.,	Oct. 14
1923	2.824c.,	April 24;	2.446c.,	Jan. 2

Pig Iron

March 23, 1926, $21.38 Per Gross Ton

One week ago	$21.38
One month ago	21.46
One year ago	21.88
10-year pre-war average	15.72

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham.

	High		Low	
1926	$21.54,	Jan. 5;	$21.38,	March 9
1925	22.50,	Jan. 13;	18.96,	July 7
1924	22.88,	Feb. 26;	19.21,	Nov. 3
1923	30.86,	March 20;	20.77,	Nov. 20

In a general way, March has been satisfactory in point of production and shipments of steel, but not in the matter of new business, and some slight slowing down of output may be seen in the next two weeks unless spring demands come to the rescue. Buyers still have ample confidence in the ability of the mills to produce and ship promptly at short notice, and have no fears about the delivery service of the railroads. Buying consequently is at short range, and rolling mill schedules still are subject to frequent change. The encouraging feature is that, as a rule, shipments are demanded promptly, which means that consumption is holding up, and that users are not extremely comfortable in the matter of stocks. Prices generally are steady.

The primary materials markets are featured by a further decline of $5 a ton in ferromanganese to $90, Atlantic seaboard, or $25 a ton below the quotation ruling when the price war broke out. Actual business in pig iron in this market shows a slight increase, but large demands which would provide a real test of prices are lacking. Considerable second quarter furnace coke has been quietly contracted for in the past week, and while prices above and below $3.25 per net ton at ovens are reported, that price is a representative average. This price compares with $3.75 to $4.10 on first quarter tonnage.

Pig Iron.—Actual sales of pig iron have shown some increase since a week ago, but it would be exaggeration to call the market other than quiet. A local builder of rolling mills recently closed for 700 tons of No. 2 foundry at $20.50, Valley furnace, and

we also note a sale of 2500 tons of malleable iron at $20.50, both sales being for second quarter shipment. The United States Radiator Co., Detroit, is reported to be about ready to close on 3000 tons of No. 2 and No. 2X foundry for its West Newton, Pa., plant, and there is an inquiry for 1000 tons of No. 2 iron from the Titusville Iron Works, Titusville, Pa., for second quarter shipment. Sales of Bessemer iron, aggregating 700 tons, have been made at the full price of $21, Valley furnace. Neither sales nor inquiries are reported for basic grade. All producers serving this district are still quoting prices they have held to since last November. Important melters appear to have sufficient iron to carry them through April, and a few of them bought late last year against their requirements to July 1. A quiet market unuder the circumstances is natural, and the urge to buy is removed by the fact that the week's developments in ore and coke prices are not suggestive of higher pig iron prices in the near future. It is not a favorable development either that the prices of Lake front furnaces have weakened, because that means more dependence by Valley furnaces on business toward, rather than away from, Pittsburgh. Mattie furnace, A. M. Byers Co., Girard, Ohio, will be blown in tomorrow (March 24) after a shut-down of several months. Resumption by this furnace will not add to the supply of merchant iron because the company will require all of the production for its pipe plants for some time to come.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being $1.76 per gross ton:

Basic	$20.00
Bessemer	21.00
Gray forge	20.00
No. 2 foundry	20.50
No. 3 foundry	20.00
Malleable	20.50
Low phosphorus, copper free	$28.00 to 28.50

Ferroalloys.—Ferromanganese at $95 and even $90, Atlantic seaboard, with a guarantee against the seller's decline, has found strong appeal among consumers not previously covered or who had only partial protection against this year's requirements. Sales in this and nearby districts are estimated at 20,000 to 25,000 tons, of which more than half was taken by a steel company which hitherto has been depending on its own product. This business was at $95 and $90, seaboard, subject to revision in the event of a reduction by the seller, and is for delivery over the rest of the year. There is some talk of a withdrawal of the price, but the coverage already given consumers is so full that there is doubt that there will be a demand sufficient to sustain higher prices this year. British producers still are quoting $110, duty paid, Atlantic seaboard, but for obvious reasons are getting no business. Specifications are good against contracts for spiegeleisen and the higher grades of ferrosilicon, but new business is light. Prices are given on page 871.

Semi-Finished Steel.—Non-integrated steel makers are specifying rather well against first quarter contracts, but evidently the supplies coming to them are sufficient to take care of their April requirements, as they have not shown much interest in second quarter contracts. The next few days probably will see some activity in that direction on the part of companies that rarely change their sources of supply. On such business as has been closed, first quarter prices, or $35 for large billets and slabs and $36 for small billets and slabs and sheet bars, have ruled. Demand for wire rods is steady enough, but both orders and specifications are for the nearby requirements of buyers. Skelp does not show much life in open market transactions. Prices are given on page 871.

Wire Products.—The present market compares favorably with that of a year ago. Then, jobbers and manufacturing consumers were heavily stocked as a result of heavy shipments in January and February, and fresh demand was sharply downward; today, jobbers and consumers have light stocks, and with consumption expanding in most directions with the approach of spring, demands on the mills are on the upgrade. There is some disappointment that woven wire fence has not moved faster, and there is a fear that with good weather the farmers will forget fence building in favor of field work, but another view is that there will be considerable time for fence building before the ground is right for field work. Prices are very steady at recent levels; they are given on page 869.

Rails and Track Supplies.—Continued high engagement of standard rail-making capacity is noted, and shipments are heavy as the track-laying season approaches. The railroads are specifying well against contracts for spikes and other track accessories, but new business in these lines is rather slow. Small spikes are not selling so well as recently, and the market in light rails also has narrowed. Prices are given on page 869.

Sheets.—Prices continue to strengthen, and if there is now any shading of 4.60c., base Pittsburgh, on galvanized sheets, it is for reasons special to the individual case. Lower prices are hardly representative of the general market or what can be readily done. There is no shading of 2.50c., base, on blue annealed sheets and concession from 3.35c., base, on black sheets are less frequent, while larger demands for automobile body sheets are keeping the market firm on that grade at the regular quotation. Automobile builders are increasing production and are more anxious for body sheets than they were in the first two months of the year. In other directions consumption of sheets has been heavy. Shipments of independent manufacturers for January and February were within 5000 tons of the production of the same months, which averaged more than 102 per cent of rated capacity of companies reporting. Production and shipments are not now running so far ahead of new business as was true in January and February, and there is immediately ahead a much larger automobile body tonnage than came out in either of those months. Prices are given on page 869.

Tin Plate.—New business is light, but most manufacturers are well supplied with contracts, against which specifications are coming along freely, and they do not need additional business to maintain practically full engagement of mills. The packing industry is nearer its season, and that specifications against packing can sizes of tin plate are sustained is evidence that can makers are still confident regarding the crop outlook and do not believe they have overbought.

Hot-Rolled Flats.—Orders and specifications are gaining, but since they call for early shipment, there has been a gain in the outward movement and makers are not adding to their backlogs. It is a market of short range, both as to buying and the way the mills can be operated. Prices are firm; they are given on page 869.

Cold-Rolled Strips.—Larger production plans of the automobile builders are finding reflection in the demand for this product, but shipments still are running a little heavier than incoming business, and it is difficult for manufacturers to schedule mills more than a week ahead, as backlog business is not very heavy. There is some shading of 3.90c., base Pittsburgh or Cleveland, but that price is still observed by the great majority of producers.

Bolts, Nuts and Rivets.—In incoming business in bolts and nuts, this month is running slightly ahead of the same period in February, but in rivets March has not made so good a showing. Bolt and nut prices are firm, but in large rivets there is a spread of as much as $6 a ton between contract prices and those at which some attractive orders are being placed. Prices and discounts are given on page 871.

Warehouse Business.—Sales of steel from local warehouses are of fair proportions, but would be better if the line were more clearly drawn between what constitutes mill and warehouses prices. Warehouse prices have not changed much lately.

Steel and Iron Bars.—Buyers are specifying well against unshipped first quarter tonnages of steel bars, but strictly new business for either spot or second quarter delivery is not heavy enough to counterbalance shipments and with backlogs fairly well whittled down, most mills are promising deliveries on all sizes in two weeks. The effort still is being made to raise prices to 2.10c., base Pittsburgh, for small lots, but generally

Prices of Finished Iron and Steel Products (Carload Lots)

Iron and Steel Bars

Soft Steel

	Base Per Lb.
F.o.b. Pittsburgh mills	2.00c. to 2.10c.
F.o.b. Chicago	2.10c.
Del'd Philadelphia	2.32c.
Del'd New York	2.34c. to 2.44c.
Del'd Cleveland	2.19c.
F.o.b. Birmingham	2.15c. to 2.25c.
C.i.f. Pacific ports	2.35c.
F.o.b. San Francisco mills	2.35c. to 2.40c.

Billet Steel Reinforcing

F.o.b. Pittsburgh mills	2.00c. to 2.10c.

Rail Steel

F.o.b. mill	1.80c. to 1.90c.
F.o.b. Chicago	2.00c.

Iron

Common iron, f.o.b. Chicago	2.00c.
Refined iron, f.o.b. P'gh mills	3.00c.
Common iron, del'd Philadelphia	2.22c.
Common iron, del'd New York	2.24c.

Tank Plates

	Base Per Lb.
F.o.b. Pittsburgh mill	1.85c. to 1.90c.
F.o.b. Chicago	2.10c.
F.o.b. Birmingham	1.95c. to 2.05c.
Del'd Cleveland	2.04c. to 2.09c.
Del'd Philadelphia	2.12c. to 2.22c.
Del'd New York	2.14c. to 2.24c.
C.i.f. Pacific ports	2.30c.

Structural Shapes

	Base Per Lb.
F.o.b. Pittsburgh mill	1.90c. to 2.00c.
F.o.b. Chicago	2.10c.
F.o.b. Birmingham	1.95c. to 2.05c.
Del'd Cleveland	2.09c. to 2.19c.
Del'd Philadelphia	2.12c. to 2.22c.
Del'd New York	2.24c. to 2.34c.
C.i.f. Pacific ports	2.35c.

Hot-Rolled Flats (Hoops, Bands and Strips)

	Base Per Lb.
All gages, narrower than 6 in., P'gh	2.50c.
All gages, 6 in. and wider, P'gh	2.30c.
All gages, 6 in. and narrower, Chicago	2.60c.
All gages, wider than 6 in., Chicago	2.50c.

Cold-Finished Steel

	Base Per Lb.
Bars, f.o.b. Pittsburgh mills	2.50c.
Bars, f.o.b. Chicago	2.50c.
Bars, Cleveland	2.55c.
Shafting, ground, f.o.b. mill	*2.70c. to 3.00c.
Strips, f.o.b. Pittsburgh mills	3.90c.
Strips, f.o.b. Cleveland mills	3.90c.
Strips, delivered Chicago	4.20c.
Strips, f.o.b. Worcester mills	4.05c.

*According to size.

Wire Products

(To jobbers in car lots f.o.b. Pittsburgh and Cleveland)

	Base Per Keg
Wire nails	$2.65
Galv'd nails, 1-in. and longer	4.65
Galv'd nails, shorter than 1 in.	4.90
Galvanized staples	3.35
Polished staples	3.10
Cement coated nails	2.65

	Base Per 100 Lb.
Bright plain wire, No. 9 gage	$2.50
Annealed fence wire	2.65
Spring wire	3.50
Galv'd wire, No. 9	3.10
Barbed wire, galv'd	3.35
Barbed wire, painted	3.10

Chicago district mill and delivered Chicago prices are $1 per ton above the foregoing. Birmingham mill prices $3 a ton higher; Worcester, Mass., mill $3 a ton higher on production of that plant; Duluth, Minn., mill $2 a ton higher; Anderson, Ind., $1 higher.

Woven Wire Fence

	Base to Retailers Per Net Ton
F.o.b. Pittsburgh	$65.00
F.o.b. Cleveland	65.00
F.o.b. Anderson, Ind.	66.00
F.o.b. Chicago district mills	67.00
F.o.b. Duluth	68.00
F.o.b. Birmingham	68.00

Sheets

Blue Annealed

	Base Per Lb.
Nos. 9 and 10, f.o.b. Pittsburgh	2.50c.
Nos. 9 and 10, f.o.b. Ch'go dist. mills	2.60c.
Nos. 9 and 10, del'd Phila'phia	2.82c.

Box Annealed, One Pass Cold Rolled

No. 28, f.o.b. Pittsburgh	3.25c. to 3.35c.
No. 28, f.o.b. Ch'go dist. mill	3.45c.
No. 28, del'd Phila'phia	3.67c.

Galvanized

No. 28, f.o.b. Pittsburgh	4.50c. to 4.60c.
No. 28, f.o.b. Chicago dist. mill	4.70c.
No. 28, del'd Philadelphia	4.92c.

Tin Mill Black Plate

No. 28, f.o.b. Pittsburgh	3.25c. to 3.35c.
No. 28, f.o.b. Chicago dist. mill	3.45c.

Automobile Body Sheets

No. 22, f.o.b. Pittsburgh	4.40c.

Long Ternes

No. 28, 8-lb. coating, f.o.b. mill	4.85c.

Tin Plate

	Per Base Box
Standard cokes, f.o.b. P'gh district mills	$5.50
Standard cokes, f.o.b. Gary and Elwood, Ind.	5.60

Terne Plate

(*F.o.b. Morgantown or Pittsburgh*)

(Per package, 20 x 28 in.)

8-lb. coating, 100 lb. base	$11.40
8-lb. coating I.C.	11.70
15-lb. coating I.C.	14.85
20-lb. coating I.C.	$16.20
25-lb. coating I.C.	17.90
30-lb. coating I.C.	19.45
40-lb. coating I.C.	21.65

Alloy Steel Bars

(F.o.b. Pittsburgh or Chicago)

S. A. E. Series Numbers		Base Per 100 Lb.
2100*	(1½% Nickel, 0.10% to 0.20% Carbon)	$3.20 to $3.25
2300	(3½% Nickel)	4.50 to 4.60
2500	(5% Nickel)	5.70 to 5.80
3100	(Nickel Chromium)	3.50 to 3.60
3200	(Nickel Chromium)	5.00 to 5.25
3300	(Nickel Chromium)	7.00 to 7.25
3400	(Nickel Chromium)	6.25 to 6.50
5100	(Chromium Steel)	3.50
5200*	(Chromium Steel)	7.00 to 7.50
6100	(Chrom. Vanadium bars)	4.20 to 4.30
6100	(Chrom. Vanad. spring steel)	3.80
9250	(Silicon Manganese spring steel)	3.20 to 3.25
	Carbon Vanadium (0.45% to 0.55% Carbon, 0.15% Vanad.)	4.10 to 4.20
	Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chrom., 0.15 Vanad.)	4.45 to 4.55
	Chromium Molybdenum bars (0.80—1.10 Chrom., 0.25—0.40 Molyb.)	4.25 to 4.35
	Chromium Molybdenum bars (0.50—0.70 Chrom., 0.15—0.25 Molyb.)	3.40 to 3.50
	Chromium Molybdenum spring steel (1 — 1.25 Chrom., 0.30 — 0.50 Molybdenum)	4.50 to 4.75

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for cold-drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10 in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4 in. down to and including 2½-in. squares, the price is $5 a gross ton above the 4 x 4 billet price.

*Not S. A. E. specifications, but numbered by manufacturers to conform to S. A. E. system.

Rails

	Per Gross Ton
Standard, f.o.b. mill	$43.00
Light (from billets), f.o.b. mill	35.00 to 36.00
Light (from rail steel), f.o.b. mill	33.00 to 34.00
Light (from billets), f.o.b. Ch'go mill	36.00 to 38.00

Track Equipment

(F.o.b. Mill)

	Base Per 100 Lb.
Spikes, ⅜ in. and larger	$2.80 to $3.10
Spikes, ⅓ in. and smaller	3.00 to 3.50
Spikes, boat and barge	3.25
Track bolts, all sizes	4.00 to 4.50
Tie plates, steel	2.25 to 2.35
Angle bars	2.75

Welded Pipe

Base Discounts f.o.b. Pittsburgh District and Lorain, Ohio, Mills

Butt Weld

Steel Inches	Black	Galv.	Iron Inches	Black	Galv
⅛	45	19½	¼ to ⅜	+11	+39
¼ to ⅜	51	25½	½	22	2
½	56	42½	¾	28	11
¾	60	48½	1 to 1½	30	12
1 to 3	62	50½			

Lap Weld

2	55	43½	2	23	7
2½ to 6	59	47½	2½	26	11
7 and 8	56	43½	3 to 6	28	13
9 and 10	54	41½	7 to 12	26	11
11 and 12	53	40½			

Butt Weld, extra strong, plain ends

⅛	41	24½	¼ to ⅜	+19	+54
¼ to ⅜	47	30½	½	21	7
½	53	42½	¾	28	12
¾	58	47½	1 to 1½	30	14
1 to 1½	60	49½			
2 to 3	61	50½			

Lap Weld, extra strong, plain ends

2	53	42½	2	23	9
2½ to 4	57	46½	2½ to 4	29	15
4½ to 6	56	45½	4½ to 6	28	14
7 to 8	52	39½	7 to 8	21	7
9 and 10	45	32½	9 to 12	16	2
11 and 12	44	31½			

To the large jobbing trade the above discounts on steel pipe are increased on black by one point, with supplementary discount of 5%, and on galvanized by 1½ points, with supplementary discount of 5%. On iron pipe, both black and galvanized, the above discounts are increased to large jobbers by one point with supplementary discounts of 5 and 2½%.

Note.—Chicago district mills have a base two points less than the above discounts. Chicago delivered base is 2½ points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point producing the lowest price to destination.

Boiler Tubes

Base Discounts f.o.b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2 to 2¼ in.	27	1½ in.	+18
2½ to 2¾ in.	37	1¾ to 1⅞ in.	+ 8
3 in.	40	2 to 2¼ in.	— 2
3¼ to 3¾ in.	42½	2½ to 3 in.	— 7
4 to 13 in.	46	3¼ to 4½ in.	— 9

Beyond the above discounts, 5 to 7 fives extra are given on lap welded steel tubes and 2 to 3 tens on charcoal iron tubes.

Standard Commercial Seamless Boiler Tubes

Cold Drawn

1 in.	60	3 in.	45
1¼ to 1½ in.	52	3½ to 3½ in.	47
1¾ in.	56	4 in.	50
2 to 2¼ in.	51	4½, 5 and 6 in.	45
2½ to 2¾ in.	39		

Hot Rolled

2 and 2¼ in.	34	3¼ and 3½ in.	50
2½ and 2¾ in.	42	4 in.	53
3 in.	48	4½, 5 and 6 in.	48

Less carloads, 4 points less. Add $8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing

	Per Cent Off List
Carbon, 0.10% to 0.30%, base	50 to 55
Carbon, 0.30% to 0.40%, base	45 to 50

Plus differentials for lengths over 18 ft. and for commercially exact lengths. Warehouse discounts on small lots are less than the above.

2c. is more representative of the ruling market. Iron bars are holding at recent prices, with buying steady but at short range.

Structural Material.—This market is still quotable at 1.90c. to 2c., base Pittsburgh, on large structural shapes, according to the size of the order. This immediate district lately has not been productive of much fabricated steel business, although inquiry is reported to be good and a number of small tonnages are coming to local shops. Rebuilding of the General Forbes Hotel, Pittsburgh, will require 1200 tons of steel. The general contracts are yet to be let for the Pittsburgh Pennsylvania Hotel, which will require about 8000 tons, for the Loew theater and office building, Sixth Street and Penn Avenue, and the Rowland Clark theater and office building, Seventh Avenue and Penn Avenue.

Plates.—The market remains quotable at recent prices. Some good-sized tonnages are in sight for river barges and tow boats. The inquiry has yet to appear for 40 barges and three tow boats for the Upper Mississippi Barge Line, but it probably will come out in the next fortnight. It is estimated that this order will call for 8500 tons of plates, and there is about 1000 tons more in six other barges likely to be let in the next few days.

Tubular Goods.—Business in pipe is holding the recent improvement very well, although no additional line pipe orders have been placed in the past week. There is sufficient business to give the pipe mills an operation of 70 to 75 per cent of capacity, which is a fairly high rate as compared with 1923, since there has been an increase in welded pipe capacity of approximately 20 per cent. Observance of prices by the various makers is very much better than it was during the latter part of last year. Boiler tube prices are still favorable to buyers. Discounts are given on page 869.

Cold-Finished Steel Bars and Shafting.—Specifications on contracts are good, and makers here also are entering many second quarter contracts. It is still a matter of comment that there are no important deviations from the regular quotation of 2.50c., base Pittsburgh, on ordinary tonnages.

Coke and Coal.—The interesting development of the past week is that a very considerable part of the Connellsville production of furnace coke for second quarter has been contracted for. Prices all the way from $3 to $3.35 per net ton at ovens are reported, but the great bulk of the business appears to have been closed at $3.25. There also has been some second quarter contracting for foundry coke, with good brands going at $4.25 to $4.75 and $5 reported on some of the special brands. Spot offerings of furnace coke have decreased since a week ago, and this has helped to sustain prices in the face of light demand. It is still a buyer's market in coal except for slack, which at the moment is rather scarce. Prices are given on page 871.

Old Material.—Hardly enough business has been done in the past week to clearly define prices. There is little interest in the market on the part of the steel companies, which, despite a comparatively high rate of ingot production, are managing to get along with what are regarded as small amounts of market scrap. Foundries also are doing very little in the market. The chief support of prices is by dealers who have short orders and have to cover before they are canceled. Producers of scrap are not letting it go freely at present prices, and there are no steel companies that will go as high as $18 for heavy melting steel, a price regarded as necessary to insure profitable short selling.

We quote for delivery to consumer's mill in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

	Per Gross Ton
Heavy melting steel	$17.50 to $18.00
No. 1 cast, cupola size	17.00 to 17.50
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa.	19.00 to 19.50
Compressed sheet steel	15.50 to 16.00
Bundled sheets, sides and ends	14.50 to 15.00
Railroad knuckles and couplers	20.00 to 20.50
Railroad coil and leaf springs	20.00 to 20.50
Low phosphorus blooms and billet ends	22.00 to 22.50
Low phosphorus plates and other material	19.50 to 20.00
Low phosphorus punchings	19.50 to 20.00
Steel car axles	22.00 to 23.00
Cast iron wheels	18.00 to 18.50
Rolled steel wheels	20.00 to 20.50
Machine shop turnings	13.00 to 13.50
Short shoveling turnings	13.00 to 13.50
Sheet bar crops	20.00 to 20.50
Heavy steel axle turnings	16.00 to 16.50
Short mixed borings and turnings	13.00 to 13.50
Heavy breakable cast	15.00 to 15.50
Cast iron borings	13.00 to 13.50
No. 1 railroad wrought	12.50 to 13.00
No. 2 railroad wrought	17.50 to 18.00

Warehouse Prices f.o.b. Pittsburgh

	Base per Lb.
Tank plates	3.00c.
Structural shapes	3.00c.
Soft steel bars and small shapes	2.90c.
Reinforcing steel bars	2.90c.
Cold-finished shafting and screw stock—	
Rounds and hexagons	3.60c.
Squares and flats	4.10c.
Bands	3.60c.
Spikes, large	3.30c.
Small	3.80c. to 5.25c.
Boat	3.80c.
Bolts, track	4.90c.
Wire, black soft annealed, base per 100 lb	$3.00
Wire, galvanized soft, base per 100 lb	3.00
Common wire nails, per keg	3.00
Cement coated nails	3.05

RAILROAD EQUIPMENT

Quiet Week in Rolling Stock—Only 1,100 Cars Ordered—Inquiries for 37 Locomotives

Although considerable railroad car business is pending, some of which may be closed this week, orders for only 1100 freight cars were placed within the past week. No locomotive orders are reported, but there are inquiries for 37 engines.

The principal equipment items of the week follow:

The Southern Railway has increased its order for box cars placed with the Mount Vernon Car Mfg. Co. from 1000 to 1500. This road is also having 2100 gondola cars repaired and 100 caboose cars built, and in its own shops is building 500 flat cars. An order was recently awarded to the Virginia Bridge & Iron Co. for 1000 steel underframes to be used on cars that are undergoing repairs in the road's own shops.

The Richmond, Fredericksburg & Potomac has ordered 6 steel express cars from the American Car & Foundry Co. and 4 coaches from the Bethlehem Shipbuilding Corporation.

The Kentucky & Indiana Terminal is in the market for 3 6-wheel and 8 8-wheel switching locomotives.

The Great Northern is inquiring for an oil electric locomotive.

The Lackawanna is asking prices on 15 Mikado and 10 3-cylinder locomotives.

Some Movement in Scrap at Detroit

DETROIT, March 23.—Several releases on old orders from mills in Ohio have added some strength to the market on old material in this district, but new sales have not involved any appreciable tonnage. Offerings by the largest producers for April show a slight decline in total volume from those of March, this being a very good indication that automobile production is keeping pace with, but not overunning, sales.

The following prices are quoted on a gross ton basis f.o.b. producers' yards, excepting stove plate, No. 1 machinery cast and automobile cast, which are quoted on a net ton basis:

Heavy melting and shoveling steel	$13.50 to $14.00
Borings and short turnings	10.00 to 10.50
Long turnings	9.00 to 9.50
No. 1 machinery cast	17.00 to 18.00
Automobile cast	23.00 to 24.00
Hydraulic compressed	11.75 to 12.25
Stove plate	13.50 to 14.50
No. 1 busheling	11.75 to 12.25
Sheet clippings	7.00 to 7.50
Flashings	10.50 to 11.00

Semi-Finished Steel, Raw Materials, Bolts and Rivets

Semi-Finished Steel

F.o.b. Pittsburgh or Youngstown

Billets and Blooms

	Per Gross Ton
Rolling, 4-in. and over	$35.00
Rolling, 2-in. and smaller	36.00
Forging, ordinary	40.00
Forging, guaranteed	45.00

Sheet Bars

	Per Gross Ton
Open-hearth or Bessemer	$36.00

Slabs

	Per Gross Ton
8 in. x 2 in. and larger	$35.00
6 in. x 2 in. and smaller	36.00

Skelp

	Per Lb.
Grooved	1.90c.
Sheared	1.90c.
Universal	1.90c.

Wire Rods

	Per Gross Ton
*Common soft, base, No. 5 to ⅜-in.	$45.00
Common soft, coarser than ⅜-in.	$2.50 over base
Screw stock	$5.00 per ton over base
Carbon 0.20% to 0.40%	3.00 per ton over base
Carbon 0.41% to 0.55%	5.00 per ton over base
Carbon 0.56% to 0.75%	7.50 per ton over base
Carbon over 0.75%	10.00 per ton over base
Acid	15.00 per ton over base

*Chicago mill base is $46. Cleveland mill base, $45.

Raw Materials

Ores

Lake Superior Ores, Delivered Lower Lake Ports

	Per Gross Ton
Old range Bessemer, 51.50% iron	$4.55
Old range non-Bessemer, 51.50% iron	4.40
Mesabi Bessemer, 51.50% iron	4.40
Mesabi non-Bessemer, 51.50% iron	4.25
High phosphorus, 51.50% iron	4.15

Foreign Ore, c.i.f. Philadelphia or Baltimore

	Per Unit
Iron ore, low phos., copper free, 55 to 58% iron in dry Spanish or Algerian	9.50c. to 10c.
Iron ore, Swedish, average 66% iron	9.50c.
Manganese ore, washed, 51% manganese, from the Caucasus	45c.
Manganese ore, Brazilian or Indian, nominal	42c. to 44c.
Tungsten ore, high grade, per unit, in 60% concentrates	$12.50 to $14.00
	Per Ton
Chrome ore, Indian basic, 48% Cr_2O_3, crude, c.i.f. Atlantic seaboard	$22.00 to $23.00
	Per Lb.
Molybdenum ore, 85% concentrates of MoS_2, delivered	55c. to 60c.

Coke

	Per Net Ton
Furnace, f.o.b. Connellsville prompt	$3.00 to $3.25
Foundry, f.o.b. Connellsville prompt	4.25 to 4.75
Foundry, by-product, Ch'go ovens	10.50
Foundry, by-product, New England, del'd	13.00
Foundry, by-product, Newark or Jersey City, delivered	11.52
Foundry, Birmingham	5.50
Foundry, by-product, St. Louis or Granite City	10.00

Coal

	Per Net Ton
Mine run steam coal, f.o.b. W. Pa. mines	$1.50 to $2.00
Mine run coking coal, f.o.b. W. Pa. mines	1.90 to 2.25
Mine run gas coal, f.o.b. W. Pa. mines	1.90 to 2.15
Steam slack, f.o.b. W. Pa. mines	1.30 to 1.40
Gas slack, f.o.b. W. Pa. mines	1.40 to 1.50

Ferromanganese

	Per Gross Ton
Domestic, 80%, furnace or seab'd.	$90.00 to $95.00
Foreign, 80%, Atlantic or Gulf port, duty paid	$90.00 to 110.00

Spiegeleisen

	Per Gross Ton Furnace
Domestic, 19 to 21%	$32.00 to $34.00
Domestic, 16 to 19%	31.00 to 33.00

Electric Ferrosilicon

	Per Gross Ton Delivered
50%	$85.00
75%	145.00

Per Gross Ton Furnace		Per Gross Ton Furnace	
10%	$42.00	12%	$42.00
11%	42.00	14 to 16%	$45 to 46.00

Bessemer Ferrosilicon

F.o.b. Jackson County, Ohio, Furnace

Per Gross Ton		Per Gross Ton	
10%	$36.00	12%	$40.00
11%	38.00		

Silvery Iron

F.o.b. Jackson County, Ohio, Furnace

Per Gross Ton		Per Gross Ton	
6%	$28.50	10%	$34.00
7%	29.50	11%	36.00
8%	30.50	12%	38.00
9%	32.00		

Other Ferroalloys

Ferrotungsten, per lb. contained metal, del'd	$1.15 to $1.20
Ferrochromium, 4% carbon and up, 60 to 70% Cr., per lb. contained Cr. delivered	11.50c.
Ferrovanadium, per lb. contained vanadium, f.o.b. furnace	$3.25 to $4.00
Ferrocarbontitanium, 15 to 18%, per net ton, f.o.b. furnace, in carloads	$200.00
Ferrophosphorus, electric or blast furnace material, in carloads, 18%, Rockdale, Tenn., base, per net ton	$91.00
Ferrophosphorus, electric, 24%, f.o.b. Anniston, Ala., per net ton	$122.50

Fluxes and Refractories

Fluorspar

	Per Net Ton
Domestic, 85% and over calcium fluoride, not over 5% silica, gravel, f.o.b. Illinois and Kentucky mines	$17.00 to $17.50
No. 2 lump, Illinois and Kentucky mines	$20.00
Foreign, 85% calcium fluoride, not over 5% silica, c.i.f. Atlantic port, duty paid,	$17.50 to $18.00
Domestic, No. 1 ground bulk, 95 to 98% calcium fluoride, not over 2½% silica, f.o.b. Illinois and Kentucky mines	$32.50

Fire Clay

	Per 1000 f.o.b. Works	
	High Duty	Moderate Duty
Pennsylvania	$43.00 to $46.00	$40.00 to $43.00
Maryland	48.00 to 50.00	43.00 to 45.00
Ohio	43.00 to 46.00	40.00 to 43.00
Kentucky	43.00 to 45.00	40.00 to 43.00
Illinois	43.00 to 45.00	40.00 to 43.00
Missouri	40.00 to 43.00	35.00 to 38.00
Ground fire clay, per ton	6.50 to 7.50	

Silica Brick

	Per 1000 f.o.b. Works
Pennsylvania	$40.00
Chicago	49.00
Birmingham	54.00
Silica clay, per ton	$8.00 to 9.00

Magnesite Brick

	Per Net Ton
Standard size, f.o.b. Baltimore and Chester, Pa.	$65.00
Grain magnesite, f.o.b. Baltimore and Chester, Pa.	40.00

Chrome Brick

	Per Net Ton
Standard size	$48.00

Bolts, Nuts, Rivets and Set Screws

Bolts and Nuts

(Less-than-Carload Lots)

(F.o.b. Pittsburgh, Cleveland, Birmingham and Chicago)

	Per Cent Off List
Machine bolts, small, rolled threads	60 and 10
Machine bolts, all sizes, cut threads	50, 10 and 10
Carriage bolts, smaller and shorter, rolled threads	50, 10 and 10
Carriage bolts, cut threads, all sizes	50 and 10
Eagle carriage bolts	65 and 10
Lag bolts	60, 10 and 10
Plow bolts, Nos. 3 and 7 heads	50 and 10
(Extra of 20% for other style heads)	
Machine bolts, c.p.c. and t. nuts, ⅜ x 4 in.,	45, 10 and 5
Larger and longer sizes	45, 10 and 5
Bolt ends with hot-pressed nuts	50, 10 and 10
Bolt ends with cold-pressed nuts	45, 10 and 5
Hot-pressed nuts, blank and tapped, square,	4.00c. per lb. off list
Hot-pressed nuts, blank or tapped, hexagons,	4.40c. per lb. off list
C.p.c. and t. square or hex. nuts, blank or tapped	4.10c. per lb. off list
Washers*	6.50c. to 6.25c. per lb. off list

*F.o.b. Chicago and Pittsburgh.

The discount on machine, carriage and lag bolts is 5 per cent more than above for car lots. On hot-pressed and cold-punched nuts the discount is 25c. more per 100 lb. than quoted above for car lots.

Bolts and Nuts

(Quoted with actual freight allowed up to but not exceeding 50c. per 100 lb.)

	Per Cent Off List
Semi-finished hexagon nuts:	
⅞ in. and smaller, U. S. S.	80, 10 and 5
⅞ in. and larger, U. S. S.	75, 10 and 5
Small sizes, S. A. E.	80, 10, 10 and 5
S. A. E., ⅝ in. and larger	75, 10, 10 and 5
Stove bolts in packages	80, 10 and 5
Stove bolts in bulk	80, 10, 5 and 2½
Tire bolts	60 and 5

Semi-Finished Castellated and Slotted Nuts

(Actual freight allowed up to but not exceeding 50c. per 100 lb.)

(To jobbers and consumers in large quantities)

	Per 100 Net S.A.E.	Per 100 Net U.S.S.		Per 100 Net S.A.E.	Per 100 Net U.S.S.
¼-in.	$0.44	$0.44	⅝-in.	$2.35	$2.40
5/16-in.	0.515	0.515	⅞-in.	3.60	3.60
⅜-in.	0.62	0.66	1-in.	5.55	5.80
7/16-in.	0.79	0.90	1¼-in.	8.90	8.90
½-in.	1.01	1.05	1¼-in.	12.60	13.10
9/16-in.	1.38	1.42	1⅜-in.	18.35	18.35
⅝-in.	1.70	1.73	1½-in.	21.00	21.00

Larger sizes.—Prices on application.

Large Rivets

	Base Per 100 Lb.
F.o.b. Pittsburgh	$2.50 to $2.60
F.o.b. Cleveland	2.70
F.o.b. Chicago	2.75

Small Rivets

	Per Cent Off List
F.o.b. Pittsburgh	70 and 10
F.o.b. Cleveland	70 and 10
F.o.b. Chicago	70 and 10 to 70 and 5

Cap and Set Screws

(Freight allowed up to but not exceeding 50c. per 100 lb.)

	Per Cent Off List
Milled cap screws	80 and 10
Milled standard set screws, case hardened,	80 and 5
Milled headless set screws, cut thread	80
Upset hex. head cap screws, U. S. S. thread,	80, 10 and 10
Upset hex. cap screws, S. A. E. thread,	80, 10 and 10
Upset set screws	80, 10 and 5
Milled studs	70 and 5

Chicago

Pig Iron Buyers Wait—Large Volume of Structural Business—Fluorspar Drops

CHICAGO, March 23.—The high rate of steel mill operation in the Chicago district is well maintained, and with specifications still well in excess of shipments, mills have little to worry about except that they are not scheduled far in advance and buying is largely for immediate needs in practically all lines. Prices are firm, and the lack of forward buying is based almost wholly on the desire of manufacturers to proceed cautiously and stock neither raw materials nor finished products ahead of actual demands.

Rail mills are operating full and are shipping close to 20,000 tons per week. New bookings in standard-section rails are light, but new business in track accessories totaled 10,000 tons for the week. The demand for soft steel bars, which lagged somewhat during the late winter, is greatly improved, and large quantities are being taken by automobile and farm implement manufacturers, who in general are operating close to capacity. There is no halt in the rate of new construction, and fabricators of structural material estimate that in volume of demand the first three months of this year will exceed the corresponding period of 1925 by at least 30 per cent.

Pig Iron.—There is a tendency toward added strength in Northern iron, as users' stocks continue to run down and they are forced to come into the market from time to time for immediate requirements. Forward contracts, while gradually being closed, are not up to the expectations of producers. Melters are determined to wait out the market. In some cases they have issued inquiries for 500 to 1000 tons, and then have actually placed the iron in weekly or 10-day allotments of about 100 tons each. Inventories of practically all users are low, and a large consumer in Milwaukee is buying immediate requirements at the rate of six to eight cars per week in preference to contracting for an extended period. First quarter contracts for silvery are being specified in full, and users are now buying largely from hand to mouth. Shipments from local furnaces continue heavy, and sellers are of the impression that when figures for the quarter now closing are available they will be close to a record for this district. Makers of Northern iron state that if the present rate of shipments keeps up another merchant furnace will have to be blown in.

Quotations on Northern foundry, high phosphorus and malleable iron are f.o.b. local furnace, and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards.

Northern No. 2 foundry, sil. 1.75 to 2.25		$23.00
Northern No. 1 foundry, sil. 2.25 to 2.75		23.50
Malleable, not over 2.25 sil.		23.00
High phosphorus		23.00
Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago		29.04
Southern No. 2 (all rail)	$27.01 to	28.01
Southern No. 2 (barge and rail)	26.18 to	27.18
Low phos., sil. 1 to 2 per cent, copper free	31.20 to	31.70
Silvery, sil. 8 per cent		35.29
Ferrosilicon, 14 to 16 per cent.		48.79

Ferroalloys.—Domestic ferromanganese is weaker and is now being quoted at $90 to $95, seaboard, or $97.56 to $102.56, delivered. Sales are light and are for immediate shipment. Users of spiegeleisen are closely watching the market and are buying only actual requirements. Dealers are still unable to supply the 19 to 21 per cent grade, but are asking $33, furnace, or $40.76, delivered, for 17 to 19 per cent.

We quote 80 per cent ferromanganese, $97.56 to $102.56, delivered Chicago; 50 per cent ferrosilicon, $85, delivered; spiegeleisen, 18 to 22 per cent, $41.76, delivered Chicago.

Fluorspar.—Demand is light, and as low as $17, Illinois and Kentucky mines, is being done. Producers are offering larger tonnages than during the past winter.

Sheets.—Moderate weather has brought about a decided increase in the demand for galvanized sheets. Current specifications are about equal to shipments, and mills continue to operate at full capacity, although it is admitted that schedules do not extend very far ahead except in the case of blue annealed sheets. Although second quarter books have been open for some time, tonnage placed is not large and users continue to delay making their requirements known.

Chicago delivered prices from mill are 3.50c. for No. 28 black, 2.65c. for No. 10 blue annealed and 4.75c. for No. 28 galvanized. Delivered prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than the Chicago delivered prices.

Plates.—Demand for plates, and especially universal mill plates, continues heavy, and deliveries are gradually extending. The week has been very quiet for car builders, who have taken no new business and have received no fresh inquiries. The only inquiries of any moment in this market are 1000 automobile cars for the Northern Pacific and 500 hopper cars for the Burlington. Orders received by the mills from car builders total 30,000 tons for the week. It is believed that car contracts already signed will keep Western builders busy for from two to two and one-half months. Tank makers are not heavily taxed and are carrying comparatively light stocks, relying on satisfactory mill shipments and prompt railroad service. There is a tendency for prices in outlying districts to stiffen and an Eastern mill insists that an offer of 300 tons for delivery in central Indiana at $1 below the Pittsburgh base price was refused. The Chicago mill quotation of 2.10c. is firm.

The mill quotation on plates is 2.10c. per lb., base, Chicago.

Structural Material.—Mills report a substantial demand for structural shapes, with users insisting on prompt deliveries. In the Mississippi Valley and West both jobbers' and fabricators' stocks are said to be fair, but closer to Chicago buyers are inclined to depend more upon service from the mills. A fair amount of business is emanating from Iowa and Nebraska, but it consists largely of small tonnages. The outstanding local structural award of the week was 1250 tons for the University of Chicago stadium. Bridge material inquiries from Western railroads total more than 6000 tons.

The mill quotation on plain material is 2.10c., per lb., base, Chicago.

Bars.—Specifications for soft steel bars show a material increase over the preceding week, and new business booked by Chicago mills totaled over 30,000 tons, the bulk of it emanating from makers of cold-drawn bars, screws and bolts, and agricultural implements. The Chicago mill price of 2.10c. is firm. Although bar iron mills have been depending on the railroads and car builders for the bulk of their business, within the last 10 days a fair demand has sprung up from miscellaneous users. One mill, operating on single turn, now has a backlog of about two weeks. Bar iron is firm at 2c., Chicago. Forging bars rolled from billet stock are in good demand. New business in rail steel bars shows material improvement. Specifications are in good volume and one mill, running on double turn, is scheduled until the latter part of April. Demand for fence posts has eased off, but this is ascribed to the fact that muddy country roads are delaying the farmer in taking out his requirements.

Mill prices per lb. are: Mild steel bars, 2.10c., base, Chicago; common bar iron, 2c., base, Chicago; rail steel bars, 2c., base, Chicago.

Wire Products.—Merchant sales of wire products are said to be on the increase and will compare favorably with those made during the corresponding period of last year. Cold weather northwest of Chicago has lasted longer than usual this year, and trade in that section is backward. In Missouri, Kansas and Iowa unusually muddy roads are holding back business. Specifications from the manufacturing trade, especially from automobile and parts makers, are in good volume. There is a slight improvement in the demand for nails. Mill prices are shown on page 869.

Rails and Track Supplies.—Rail mills are busy and shipments range from 15,000 to 20,000 tons per week.

The winter rail buying movement is virtually completed, but miscellaneous orders during the week totaled 2000 tons. Local makers also added 3000 tons of rail joints and over 6000 tons of tie plates to their books. Since delivery schedules against rail contracts were made close to the capacity of the mills, some difficulty has been encountered in meeting shipping dates.

Standard Bessemer and open-hearth rails, $43; light rails, rolled from billets, $36 to $38 per gross ton, f.o.b. maker's mill.

Standard railroad spikes, 2.90c. to 3c. per lb. mill; track bolts with square nuts, 3.90c. to 4c. mill; steel tie plates, 2.25c., mill; angle bars, 2.75c., mill.

Billets.—This commodity is firm at $35 per gross ton for 4-in. and larger sizes. New business for the week exceeded 5000 tons.

Hot-Rolled Strip.—With the automobile industry operating at a high rate, makers of hot-rolled strip are busy meeting its requirements. The demand in general is well sustained and Chicago mill prices are 2.60c. for 6-in. and narrower and 2.50c. for wider gages.

Bolts, Nuts and Rivets.—Specifications are more liberal and prices are growing firmer. On the whole, makers are expanding operations slowly. Second quarter contracting, at unchanged prices, is well advanced.

Reinforcing Bars.—Dealers have booked little tonnage during the week. Last year February was an unusually heavy month from the standpoint of awards, and at this time shops were well engaged in shipping against them. In the past two months of this year, however, most lettings have been smaller than 100 tons each and in the aggregate do not bulk large. Shops are operating at a leisurely gait, and the only bright spot in the situation is that estimates have been prepared on a good number of fair-sized projects which are expected to materialize in orders before the end of this month. Two of the most active jobs are stadiums for the University of Chicago and Northwestern University, requiring together about 1300 tons. Chicago dealers are adhering firmly to the quotation of 2.60c. for billet steel reinforcing bars out of warehouse. New inquiries and recent lettings are shown on page 881.

Cast Iron Pipe.—This is the second week of increased activity in the market, and the interest being shown by buyers is widespread, covering virtually the entire Chicago territory. With the improved demand comes a stiffening in price and although the market is still quotable at $41 to $42, base Birmingham, for 6-in. and larger diameters, the bulk of quotations made late in the week were close to the higher figure. Bookings for the week totaled 4800 tons, and fresh inquiries cover 3000 tons. Contracts awarded include:

MISHAWAKA, IND., 550 tons, awarded to James B. Clow & Sons at $41.55, base Birmingham, or $49.75, delivered.

LITTLE CHUTE, WIS., 700 tons of 2 to 14-in. Class B to the United States Cast Iron Pipe & Foundry Co.

WARREN, MICH., 386 tons of 4, 6 and 8-in. Class B to James B. Clow & Sons at $42, base Birmingham.

PARK RIDGE, ILL., 2200 tons, 6, 8 and 12-in. Class B to the Lynchburg Foundry Co.

FORT WAYNE, IND., 250 tons to the National Cast Iron Pipe Co.

BARRINGTON, ILL., 200 tons, to the United States Cast Iron Pipe & Foundry Co.

CHICAGO, 450 tons, 8 and 12-in. Class B with the United States Cast Iron Pipe & Foundry Co.

Fresh inquiries follow:

BARBERTON, OHIO, 1000 tons, 4 to 16-in. Class B.

SPRINGFIELD, OHIO, 110 tons, 3 to 10-in. Class C.

CHICAGO, 150 tons of fittings, 3 to 24-in.; bids open March 30.

BEREA, OHIO, 420 tons of 8-in., 390 tons, 6-in., and 55 tons of 4-in., all Class B; March 31.

STAUNTON, ILL., 590 tons of 2 to 12-in. Class B pipe and 14 tons of fittings; April 6.

MILWAUKEE, 27 gate valves, 20 to 54-in.

MARSHFIELD, WIS., 165 tons of 6-in. pipe, 21 hydrants and 34 valves.

We quote per net ton, delivered Chicago, as follows: Water pipe, 4-in., $53.20 to $54.20; 6-in. and over, $49.20 to $50.20; Class A and gas pipe, $4 extra.

Old Material.—Users still resist any effort to bring them into the market for other than their spot requirements. Prices on the whole show no tendency to vary one way or the other. The Wisconsin Steel Works has bought about 2000 tons of heavy melting steel at $14.25, this being virtually a buyer's price for that commodity. Railroad lists are not heavy, but when they appear bring prices above the market on many grades. The recent Santa Fe list is said to have brought $15 per gross ton, delivered at the buyer's yard, for heavy melting steel. Steel angle bars brought $16.75, delivered, and No. 2 wrought, in heavy melting grades, $14.50 to $14.75, delivered. Low phosphorus grades, such as axle butts, were taken at $19.25. There is every indication that users of scrap are following the practice of hand-to-mouth buying. One large consumer north of Chicago who uses large tonnages of rerolling rails is limiting his stock to three weeks' supply, whereas heretofore he considered it necessary to carry reserves for not less than 90 days. Demand for prompt delivery is insistent, and dealers are busy tracing cars. Rejections by users are running unusually high. Railroad offerings include 1600 tons of relaying rails advertised by the Canadian National, 1200 tons of rails from the Pere Marquette and 1000 tons of car wheels from the Southern Pacific.

We quote delivered in consumers' yards, Chicago and vicinity, all freight and transfer charges paid for all items except relaying rails, including angle bars to match, which are quoted f.o.b. dealers' yards:

Per Gross Ton

Heavy melting steel	$14.00 to $14.25
Frogs, switches and guards, cut apart, and miscellaneous rails	15.25 to 15.75
Shoveling steel	13.75 to 14.00
Hydraulic compressed sheets	12.00 to 12.50
Drop forge flashings	11.00 to 11.50
Forged, cast and rolled steel car wheels	18.25 to 18.75
Railroad tires, charging box size	18.25 to 18.75
Railroad leaf springs, cut apart	18.25 to 18.75
Steel couplers and knuckles	16.50 to 17.00
Coil springs	19.00 to 19.50
Low phos. punchings	17.50 to 18.00
Axle turnings	15.25 to 15.75
Relaying rails, 56 lb. to 60 lb.	25.00 to 26.00
Relaying rails, 65 lb. and heavier	26.00 to 31.00
Rerolling rails	16.50 to 17.00
Steel rails, less than 3 ft.	17.50 to 18.00
Iron rails	16.50 to 17.00
Cast iron borings	11.75 to 12.25
Short shoveling turnings	11.75 to 12.25
Machine shop turnings	8.75 to 9.25
Railroad malleable	17.50 to 18.00
Agricultural malleable	16.50 to 17.00
Angle bars, steel	16.50 to 17.00
Cast iron car wheels	17.00 to 17.50

Per Net Ton

No. 1 machinery cast	17.00 to 17.50
No. 1 railroad cast	15.75 to 16.25
No. 1 agricultural cast	15.75 to 16.25
Stove plate	13.75 to 14.25
Grate bars	13.25 to 13.75
Brake shoes	12.50 to 13.00
Iron angle and splice bars	15.75 to 16.25
Iron arch bars and transoms	20.50 to 21.00
Iron car axles	25.00 to 25.50
Steel car axles	17.50 to 18.00
No. 1 railroad wrought	13.00 to 13.50
No. 2 railroad wrought	12.25 to 12.75
No. 1 busheling	11.25 to 11.75
No. 2 busheling	7.75 to 8.25
Locomotive tires, smooth	16.50 to 17.00
Pipes and flues	10.00 to 10.50

Warehouse Prices, f.o.b. Chicago

	Base per Lb.
Plates and structural shapes	3.10c.
Mild steel bars	3.00c.
Reinforcing bars, billet steel	2.60c.
Cold-finished steel bars and shafting	
Rounds and hexagons	3.60c.
Flats and squares	4.10c.
Hoops	4.15c.
Bands	3.65c.
No. 28 black sheets	4.10c.
No. 10 blue annealed sheets	3.50c.
No. 28 galvanized sheets	5.25c.
Standard railroad spikes	3.55c.
Track bolts	4.55c.
Structural rivets	3.50c.
Boiler rivets	3.70c.
	Per Cent off List
Machine bolts	50 and 5
Carriage bolts	47½
Coach or lag screws	55 and 5
Hot-pressed nuts, square, tapped or blank	3.25c. off per lb.
Hot-pressed nuts, hexagon, tapped or blank	3.75c. off per lb.
No. 8 black annealed wire, per 100 lb.	$3.30
Common wire nails, base per keg	3.05
Cement coated nails, base per keg	$2.05 to 2.20

Boston

Purchases of Foreign Pig Iron Cover Second Quarter Needs

BOSTON, March 23.—Prospective second quarter business is conspicuously lacking in the pig iron market, and indications are that little will be offered domestic furnaces. As in the past, there is an apparently inexhaustible supply of foreign iron that can be sold at prices so much lower than those for domestic that melters evince little interest in the latter. It is because so many lots of foreign iron have been absorbed by foundries that the scheduled second quarter inquiry has not developed. Sales the past week included a round tonnage of English iron to arrive at prices ranging from $21 to $24, on dock duty paid. German iron, at even lower prices, continues active, the largest sale reported being 1000 tons No. 2X at about $23.50 a ton, delivered, or $2.41 a ton less than could be done on Buffalo iron and $2.15 less than on eastern Pennsylvania iron. The German iron on dock here, duty paid, is available at about $20.50 a ton. German furnaces freely offer No. 2X iron to brokers here at $19.25 a ton, alongside dock. Small tonnages of eastern Pennsylvania iron were sold here the past week at $22, base furnace.

We quote delivered prices on the basis of the latest sales as follows, having added $3.65 freight from eastern Pennsylvania, $4.91 from Buffalo, $5.92 from Virginia, and $9.60 from Alabama:

East. Penn., sil. 1.75 to 2.25	$25.65 to $26.15
East. Penn., sil. 2.25 to 2.75	26.15 to 26.65
Buffalo, sil. 1.75 to 2.25	25.91
Buffalo, sil. 2.25 to 2.75	26.41
Virginia, sil. 1.75 to 2.25	29.92
Virginia, sil. 2.25 to 2.75	30.42
Alabama, sil. 1.75 to 2.25	31.60 to 32.60
Alabama, sil. 2.25 to 2.75	32.10 to 33.10

Cast Iron Pipe.—French pipe interests are still underbidding domestic foundries on all prospective municipal business, but are securing comparatively few orders. Danvers, Mass., which opened tenders on 800 tons of 6-in. to 20-in. pipe, rejected all bids and has called for new ones March 24. Beverly, Mass., also rejected bids on a round tonnage, presumably because French pipe was offered below American. Holyoke, Mass., has closed bids on approximately 6000 tons of 4-in. to 20-in., but probably will not make an award for 10 days or longer. On the 4988 tons of 20-in. pipe included in this lot, French pipe was offered at $45, and American at $47.35 to $54.50. Domestic small pipe prices are firm, while large pipe quotations are subject to concessions. Prices quoted openly are: 4-in., $60.10, delivered common Boston freight rate points; 6-in. and larger, $55.10. The usual $5 differential on Class A and gas pipe is asked.

Shapes and Plates.—Local fabricators report a larger number of projects in the market and pending than at any previous time since the middle of last year. While the aggregate tonnage is comparatively small, the fact that the market is active for the first time in months is encouraging. This situation is reflected in a more active demand for shapes at 2.265c. per lb., delivered, or 1.90c., on cars Pittsburgh. Most of the important plate users have covered their second quarter requirements at 2.065c. per lb., delivered, or 1.70c. base Pittsburgh. The Boston & Maine Railroad is reported to have recently covered on a round tonnage at $1 a ton under the prevailing price.

Coke.—March specifications against first half by-product foundry coke contracts continue to run behind those for the first two months of the year, and milder weather has curtailed demand for domestic fuel to a point where producers, for the first time in several months, are soliciting business. The comparatively light demand for foundry coke is attributed to the working down of melter's supplies in anticipation of lower prices in April. Both the New England Coal & Coke Co. and the Providence Gas Co., however, are still doing business at $13 a ton, delivered within a $3.10 freight rate zone. Demand for domestic coke is less active, but much heavier than a year ago. Imports of anthracite and semi-anthracite coals, especially from Rotterdam, continue on a liberal scale. Importers have no difficulty in selling all they can get.

Old Material.—More old material is coming out, yet business is not brisk, and buyers are more exacting Consequently prices remain uncertain and take an unusually wide range on certain kinds of scrap. Heavy melting steel for eastern Pennsylvania delivery has been purchased at as low as $10.60 a ton, on cars shipping point, and as high as $11.50. Most of the buying has been within a range of $10.60 to $11.10. Heavy cast has sold at $13, on cars, for Bridgeport, Conn., delivery, and at $13.50 for local shipment. A round tonnage of steel turnings has been taken at $8.60 to $9.10 for two eastern Pennsylvania mills, cast iron borings at $9.10, bundled skeleton at $8.75, and in one special instance at $9.60, long bundled cotton ties at $9.50, and short bundles at $10. Little interest is shown in other kinds of scrap. A Worcester, Mass., mill is buying a little strictly railroad scrap, but New England consumers in general are covered for a month or more.

The following prices are for gross-ton lots delivered consuming points:

Textile cast	$19.00 to $19.50
No. 1 machinery cast	18.50 to 19.00
No. 2 machinery cast	14.00 to 15.00
Stove plate	14.00 to 14.50
Railroad malleable	19.00 to 19.50

The following prices are offered per gross-ton lots, f.o.b. Boston rate shipping points:

No. 1 heavy melting steel	$10.60 to $11.50
No. 1 railroad wrought	13.00 to 13.50
No. 1 yard wrought	12.00 to 12.50
Wrought pipe (1 in. in diameter, over 2 ft. long)	11.00 to 11.25
Machine shop turnings	8.60 to 9.10
Cast iron borings, chemical	11.00 to 11.50
Cast iron borings, rolling mill	8.50 to 9.10
Blast furnace borings and turnings	8.00 to 8.50
Forged scrap	8.75 to 9.50
Bundled skeleton, long	8.75 to 9.50
Forged flashings	9.00 to 9.50
Bundled cotton ties, long	9.00 to 9.50
Bundled cotton ties, short	9.50 to 10.00
Shafting	16.75 to 17.00
Street car axles	16.50 to 17.00
Rails for rerolling	12.50 to 13.00
Scrap rails	11.00 to 11.50

St. Louis

Heavier Sales of Pig Iron—Granite City Furnace Buys Scrap

ST. LOUIS, March 23.—While the pig iron market is still dull, there has been an improvement in sales. Of 6000 tons disposed of, 1500 tons was sold to a northern Illinois melter for prompt shipment by the St. Louis Coke & Iron Corporation, which made additional sales of 1200 tons in lots of 100 tons up to 300 tons. An Iowa implement maker bought 250 tons for immediate shipment, and a western Missouri melter bought 200 tons for second quarter delivery. Stove foundries and small gray iron shops report that business is light. Small jobbing foundries are said to have done a good business in February, but there has been a slowing down this month. Prices are nominally unchanged, but it is understood that Chicago factors are

Warehouse Prices, f.o.b. St. Louis

	Base per Lb.
Plates and structural shapes	3.25c.
Bars, mild steel or iron	3.15c.
Cold-finished rounds, shafting and screw stock	3.75c.
No. 28 black sheets	4.60c.
No. 10 blue annealed sheets	3.60c.
No. 28 galvanized sheets	5.70c.
Black corrugated sheets	4.65c.
Galvanized corrugated sheets	5.75c.
Structural rivets	3.65c.
Boiler rivets	3.85c.
	Per Cent off List
Tank rivets, ⅞-in. and smaller	70
Machine bolts	55
Carriage bolts	50 and 5
Lag screws	55½
Hot-pressed nuts, square, blank or tapped	3.25c. off per lb.
Hot-pressed nuts, hexagon, blank or tapped	3.75c. off per lb.

willing to make sales in this territory on the basis of $21, Chicago, and that the Granite City furnace is disposed to meet competition.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices, $2.16 freight from Chicago, $4.42 from Birmingham, all rail, and 81c. average switching charge from Granite City:

Northern fdy., sil. 1.75 to 2.25	$25.16
Northern malleable, sil. 1.75 to 2.25	25.16
Basic	25.16
Southern fdy., sil. 1.75 to 2.25	$26.42 to 27.92
Granite City iron, sil. 1.75 to 2.25	24.31 to 24.81

Finished Iron and Steel.—The principal transaction of the week was an order for 375,000 tie plates placed by the Missouri-Kansas-Texas Railroad with the Illinois Steel Co. and the Tennessee Coal, Iron & Railroad Co. The Missouri Pacific Railroad is in the market for 2000 kegs of track spikes and 1000 kegs of track bolts for prompt delivery. Demand for sheets is very light. There is little activity in structural steel or reinforcing bars. An improvement in warehouse business is reported.

Coke.—The demand for domestic coke is keeping up surprisingly well. There is a strong demand for spot shipments, and by-product concerns have a call for more than they can produce. The demand for metallurgical grades continues good.

Old Material.—The monotony of a dull and weak market was broken this week by the sale of a large tonnage to the St. Louis Coke & Iron Corporation, representing its requirements for the next three months. The material consists of borings and turnings and busheling. It is understood that the American Steel Foundries and the American Car & Foundry Co., two of the largest consumers in the district, have orders on hand to last until September, but their supplies of old material were bought some time ago at low prices. There is very little trading among dealers, and that is confined to spot cars. Prices are unchanged. New railroad lists include: Missouri Pacific, 1500 tons; St. Louis-San Francisco, 1800 tons, and Canadian National, 1700 tons of relaying rails.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

	Per Gross Ton	
Iron rails	$13.00 to	$13.50
Rails for rolling	16.00 to	16.50
Steel rails less than 3 ft.	17.00 to	17.50
Relaying rails, 60 lb. and under	24.00 to	25.00
Relaying rails, 70 lb. and over	30.00 to	31.00
Cast iron car wheels	17.25 to	17.75
Heavy melting steel	14.00 to	14.50
Heavy shoveling steel	14.00 to	14.50
Frogs, switches and guards cut apart	15.00 to	15.50
Railroad springs	17.25 to	17.75
Heavy axle and tire turnings	11.00 to	11.50
No. 1 locomotive tires	16.50 to	17.00
Per Net Ton		
Steel angle bars	12.50 to	13.00
Steel car axles	17.75 to	18.25
Iron car axles	22.50 to	23.00
Wrought iron bars and transoms	19.50 to	20.00
No. 1 railroad wrought	11.50 to	12.00
No. 2 railroad wrought	12.50 to	13.00
Cast iron borings	9.50 to	10.00
No. 1 busheling	10.50 to	11.00
No. 1 railroad cast	14.75 to	15.25
No. 1 machinery cast	16.50 to	17.00
Railroad malleable	13.50 to	14.00
Machine shop turnings	6.75 to	7.25
Bundled sheets	7.50 to	8.00

Toronto

Decline in Canadian Pig Iron and Steel Output in February

TORONTO, ONT., March 23.—The production of coke pig iron in Canada for the month of February amounted to 49,746 gross tons, which was 12 per cent under the 56,644 tons reported for January, but 69 per cent over the 29,506 tons reported for February, 1925. The output of foundry and malleable grades, at 19,733 tons, showed an appreciable gain over the 11,895 tons for the previous month. The decline was entirely in the production of basic iron, which amounted to but 30,013 tons, as compared with 44,749 tons in January. No additional furnaces were blown in during the month, the same five being in blast at the end of February as one month previous, located as follows: British Empire Steel Corporation, Sydney, N. S., two; Steel Co. of Canada, Ltd., Hamilton, Ont., two; and the Algoma Steel Corporation, Sault Ste. Marie, Ont., one.

Canadian pig iron prices remain unchanged as follows: No. 1 foundry (2.25 to 2.75 per cent silicon) and malleable, $26.85, and No. 2 foundry (1.75 to 2.25 per cent silicon) $26.35, Toronto. At Montreal No. 1 foundry and malleable are quoted at $29.25 and No. 2 foundry at $28.75. The difference between Toronto and Montreal prices is due to the freight charges between the two points, although during navigation on the St. Lawrence River last summer the keen competition from European producers caused the differential between No. 1 and No. 2 foundry irons to be dropped.

Reflecting the lower output of pig iron, the production of steel ingots and castings in Canada during February, at 53,157 tons, showed a decline of 22 per cent from the 68,536 tons reported for the month of January. The decline was wholly in the output of steel ingots which dropped to 50,207 tons for the month.

Birmingham

Woodward Accident Reduces Southern Iron Output—Shapes Decline

BIRMINGHAM, March 23.—Pig iron production in this State has suffered a loss of about 350 tons a day as a result of a disastrous accident last Saturday at the Woodward Iron Co. plant. The No. 2 blast furnace of that company was practically destroyed by an explosion, which also caused the death of a number of employees. The loss in output will be more than made up by the blowing in during the coming month of two furnaces now being repaired. One of these will go in on foundry and the other on basic iron. The tonnage on furnace yards is still being depleted, although spot business is less active. Second quarter inquiries are appearing, but there are indications that consumers have been delaying purchases in the belief that prices may decline. There is every prospect, however, for a steady melt of iron during the next quarter, since foundries report considerable new business as well as satisfactory specifications. Cast iron pipe shops are especially busy. No unusual tonnages were sold during the past week, although several orders for 500 tons, or more, were placed. Prices are unchanged.

We quote per gross ton, f.o.b. Birmingham district furnaces, as follows:

No. 2 foundry, 1.75 to 2.25 sil.	$22.00
No. 1 foundry, 2.25 to 2.75 sil.	22.50
Basic	22.00
Charcoal, warm blast	$30.00 to 32.00

Rolled Steel.—Structural shapes can now be bought on the same basis as tank plate, i. e., at 1.95c. to 2.05c., base Birmingham. This is a decline of $2 a ton. Mills and fabricating plants are still operating at a high rate, and although practically all open-hearth furnaces are active, some steel from yard stocks is being used. The Steel Corporation plants have considerable unfilled tonnage to work on and are producing heavily, with shipments little, if any, below output. Steel bars continue to be quoted at 2.15c. to 2.25c., base Birmingham.

Cast Iron Pipe.—Municipal lettings are increasing, and with spring laying starting, another 30 days will see a large tonnage of pipe being shipped in all directions. Prices remain at about $40 per net ton, Birmingham, for 6-in. and larger diameters. The McWane Cast Iron Pipe Co. is building an addition which will give it 8800 sq. ft. more of foundry space. The new sand-spun pipe plant of the American Cast Iron Pipe Co. will be finished next month. It will begin operations with considerable business.

Coke.—Demand showed some improvement during the week, requests for spot shipment being more pressing. Foundry coke continues to range from $5.50 to $6 per net ton, Birmingham. Production and shipments are unchanged in volume.

Old Material.—Shipments are heavy against old orders, but little new business is being placed. Dealers are keeping their yard forces busy in preparation for a better demand later. Prices are unchanged.

We quote per gross ton, f.o.b. Birmingham district yards, as follows:

Cast iron borings, chemical	$15.00 to $16.00
Heavy melting steel	13.00 to 14.00
Railroad wrought	12.00 to 13.00
Steel axles	19.00 to 20.00
Iron axles	18.00 to 19.00
Steel rails	18.00 to 18.50
No. 1 cast	17.00 to 17.50
Tramcar wheels	17.00 to 17.50
Car wheels	16.00 to 16.50
Stove plate	14.00 to 14.50
Machine shop turnings	8.00 to 8.50
Cast iron borings	8.00 to 9.00
Rails for rolling	15.00 to 16.00

San Francisco

Fabricating Awards Ahead of Last Year —Fresh Inquiries Slow in Developing

SAN FRANCISCO, March 20 (*By Air Mail*).—While a substantial amount of business has been closed during the past two weeks, no fresh inquiries of importance have developed. Structural steel and plates remain the two most active commodities in the market. Fabricating awards during the two weeks total 14,920 tons, making a total of 29,085 tons for the first three weeks of March, as against 8495 tons for the same period last year. Prices generally are firm. Local interest has been aroused by reports from North Atlantic and Gulf ports that the imports of foreign iron and steel are increasing. There has been no corresponding increase on the Pacific Coast, although representatives of foreign mills have submitted bids on several large pipe line jobs recently.

Pig Iron.—No new business of importance has developed. Current sales are mostly of a routine nature. Prices are unchanged.

*Utah basic	$27.00 to $28.00
*Utah foundry, sil. 2.75 to 3.25	27.00 to 28.00
**English foundry, sil. 2.75 to 3.25	25.00 to 26.00
**Belgian foundry, sil. 2.75 to 3.25	24.00
**Dutch foundry, sil. 2.75 to 3.25	24.00
**Indian foundry, sil. 2.75 to 3.25	24.00 to 25.00
**German foundry, sil. 2.75 to 3.25	24.00
**Chinese foundry, sil. 3 to 3.50	25.50

*Delivered San Francisco.
**Duty paid, f.o.b. cars San Francisco.

Shapes.—Structural awards during the past two weeks have amounted to 7820 tons, the three largest being 2500 tons for a smelter at Douglas, Ariz., taken by the Kansas City Structural Steel Co., 2400 tons for a theater in San Francisco, awarded to Dyer Brothers, and 1100 tons for a concentrator for the United Verde Copper Co., Clarksdale, Ariz., placed with McClintic-Marshall Co. Fresh inquiries call for 1650 tons. Eastern mill quotations are firm at 2.35c., c.i.f. Coast ports.

Plates.—Recent contracts reported closed call for 7100 tons. No fresh inquiries of importance have come up for figures. The largest individual letting of the week, 3200 tons for a Medford, Ore., pipe line was placed with the Beall Tank & Pipe Co., Portland. While most of the Eastern mills continue to ask 2.30c., c.i.f., Coast ports, it is generally believed that lower quotations are obtainable on large or desirable tonnages.

Bars.—No concrete bar awards calling for 100-ton, or larger, lots are known to have been closed recently. A number of jobs are pending, however, and bar jobbers continue to quote as follows: 2.80c., base per lb. on lots of 250 tons; 2.95c., base per lb. on carload lots, and 3.20c., base per lb. on less-than-carload lots.

Warehouse Prices, f.o.b. San Francisco

	Base per Lb.
Plates and structural shapes	3.30c.
Mild steel bars and small angles	3.30c.
Small channels and tees, ¾-in. to 2¾-in.	3.90c.
Spring steel, ¼-in. and thicker	6.30c.
No. 28 black sheets	4.75c.
No. 10 blue annealed sheets	3.75c.
No. 28 galvanized sheets	6.00c.
Common wire nails, base per keg	$3.50
Cement coated nails, base per keg	3.00

Cast Iron Pipe.—Several projects calling for good-sized tonnages have been closed recently, among which are the following:

Portland, Ore., 5850 tons, to United States Cast Iron Pipe & Foundry Co.

Laguna Beach, Cal., 3610 tons, to United States Cast Iron Pipe & Foundry Co.

Los Angeles, 7857 tons, divided as follows: 6322 tons to United States Cast Iron Pipe & Foundry Co., 1101 tons to American Cast Iron Pipe Co., and 434 tons to W. K. Thompson, representing German bidders.

Seattle, 408 tons for Melrose Street extension, to B. Nicoll & Co.

Santa Barbara, Cal., 494 tons, to United States Cast Iron Pipe & Foundry Co.

Manhattan Beach, Cal., 100 tons, to B. Nicoll & Co.

Compton, Cal., 100 tons, contractor's letting.

Laguna Land & Water Co., Los Angeles, 221 tons, to Grinnell Co. of the Pacific.

Steel Pipe.—The city of Los Angeles has placed 382 tons of 12-in. welded pipe called for under Specification 789-C, with M. Allan & Co., Los Angeles. No fresh inquiries of importance are known to have come up during the week. Prices are somewhat firmer because of a higher ocean freight rate, which is now about 62¾c., instead of 61c. Mill discounts are unchanged.

Warehouse Business.—Stronger buying is reported by local jobbers, and a larger diversity of products is in demand. Quotations are unchanged.

Coke.—Interest is confined to routine business, which is rather light in tonnage.

English beehive, $15 to $16 per ton at incoming dock, and English by-product, $12 to $14; German by-product, $11.50 to $12.

Buffalo

Heavier Pig Iron Inquiry—Scrap Demand Still Drags

BUFFALO, March 23.—Pig iron inquiry shows a definite upward trend, with a total of 10,000 tons pending. The General Electric Co. seeks 5180 tons for several plants, and there is a foundry and malleable inquiry for 3000 to 4000 tons. Two 1000-ton lots are also out. The Massey-Harris Harvester Co., Batavia, N. Y., has placed 2000 tons at a price which has been withheld. Furnaces state that $21, Buffalo, is positive minimum and has not been shaded. Some resale iron is said to be moving. Most buying is in carload and two-carload lots, but melt appears to be steady.

We quote prices per gross ton, f.o.b. Buffalo, as follows:

No. 2 plain fdry., sil. 1.75 to 2.25	$21.00
No. 2X foundry, sil. 2.25 to 2.75	21.50
No. 1X foundry, sil. 2.75 to 3.25	22.50
Malleable, sil. up to 2.25	21.00
Basic	$20.50 to 21.00
Lake Superior charcoal	29.28

Finished Iron and Steel.—The volume of orders is holding up well, and mills say there has been no appreciable reduction of backlog. Operations are around 80 to 85 per cent of capacity. Bars are firm at 2.265c., Buffalo, and shapes at 2.165c. to 2.265c. Business in blue annealed sheets is improving, and demand for both black and galvanized is fair. Fabricated steel business is dull, but several thousand tons of reinforcing bars are expected to be placed in the near future. Warehouse business, which has been quiet, is improving and so far shows a better volume for March than a year ago.

Old Material.—The only demand for any grade here is for stove plate. One consumer has retired for the time being, but another has taken its place, so that the market remains firm at $15.25. The supply of this grade will gradually improve. There has been a little buying of borings at $12 to $12.50, Buffalo. Old orders are gradually disappearing. It has just become known that a consumer requiring an extra selected grade of No. 1 heavy melting steel placed from 1000 to 1500 tons two weeks ago at a delivered price of $17.25. This consumer's plant is not in Buffalo and the price includes a freight rate of 63c. One large Buffalo consumer would pay $15.50 for a tonnage now, but this

offer is not bringing out a large volume. Weather conditions are better and yard operations are improved, but conservative scrap men look for an extended quiet period.

We quote prices per gross ton, f.o.b. Buffalo, as follows:

Heavy melting steel	$15.50 to $16.00
Low phosphorus	18.50 to 19.00
No. 1 railroad wrought	14.00 to 14.50
Car wheels	17.00 to 17.50
Machine shop turnings	11.00 to 11.50
Mixed borings and turnings	12.00 to 12.50
Cast iron borings	12.00 to 12.50
No. 1 busheling	14.00 to 14.50
Stove plate	15.00 to 15.25
Grate bars	13.00 to 13.50
Hand-bundled sheets	11.00 to 11.50
Hydraulic compressed	14.00 to 14.50
No. 1 machinery cast	15.50 to 16.00
Railroad malleable	18.50 to 19.00
No. 1 cast scrap	17.00 to 17.50
Iron axles	24.00 to 25.00
Steel axles	16.00 to 16.50

New York

Make Heavier Sales of Pig Iron—Plate Contracts on 1.90c. Basis

NEW YORK, March 23.—Pig iron sales during the past week totaled close to 15,000 tons, a considerable portion of which was accounted for by two large individual sales. It cannot yet be said that a general buying movement is under way, although business is undeniably more active. The General Electric Co. has entered the market for 5500 tons for various plants, including those at Schenectady, N. Y., Pittsfield, Mass., and Elizabeth, N. J. The New York Central is inquiring for a total of 500 tons of charcoal, Bessemer, foundry and silvery for Frankfort, N. Y., and LaPorte, Ind. The Springfield Foundry Co., Springfield, Mass., is asking for figures on 350 to 400 tons for second quarter. The Eastern Malleable Iron Co., Naugatuck, Conn., is in the market for second quarter, and another Connecticut plant which was inquiring for 1200 tons of foundry and malleable for early shipment is understood to have closed for most of it. The inquiry of the Singer Mfg. Co. for 5000 tons is reported closed. The Essex foundry, which has been in the market for several thousand tons, has bought foreign iron and a small tonnage of domestic iron for prompt shipment. The United States Cast Iron Pipe & Foundry Co. has bought several thousand tons of domestic iron, for its Burlington, N. J., plant. The Crane Co., Bridgeport, Conn., has purchased foreign iron against its inquiry for 1200 tons of high silicon foundry. Despite recent assurances that distress offerings of foreign iron would soon be disposed of, imported material is still being pressed for sale at attractive prices. As low as $20.25, duty paid port of entry, has been done on Continental iron, while Indian iron has brought $21.50 for the base grade. Prices on domestic iron appear to be holding at $22, base eastern Pennsylvania furnace, and $21, base Buffalo. Melt in this territory is well maintained.

We quote per gross ton delivered in the New York district as follows, having added to furnace prices $2.52 freight from eastern Pennsylvania, $4.91 from Buffalo and $5.54 from Virginia:

East. Pa. No. 2 fdy., sil. 1.75 to 2.25	$24.52
East. Pa. No. 2X fdy., sil. 2.25 to 2.75	25.02
East. Pa. No. 1X fdy., sil. 2.75 to 3.25	25.52
Buffalo fdy., sil. 1.75 to 2.25	25.91
No. 2 Virginia fdy., sil. 1.75 to 2.25	29.54

Ferroalloys.—The ferromanganese price war continues and another $5 has been lopped off. Yesterday three sellers quoted $90 as against $95 previously and some business has been done at the $90 level. All British producers are now on a basis of $110, seaboard. Sales have been heavy, particularly around $95. Transactions will probably bring the week's total well over 20,000 tons. It is the opinion of one seller that the competitive cutting for business is over and that most of the booking for 1926 is completed. The three sellers which have led in the price reductions have been two domestic producers and one importing the electric alloy. In spiegeleisen there are about 500 tons before the market with sales of small and carload lots the only business closed. Prices continue firm and unchanged.

Finished Steel.—With the beginning of the second quarter only a little more than a week away, the steel trade looks forward with confidence to a continuation of the present high rate of operation through at least a part of that period. There has been a slowing up in specifications in some lines, but shipments are heavy, and the mills expect that before the end of the month first quarter specifications will come in practically in full. Eastern plate mills have experienced a quickening of demand against first quarter commitments because of the advance of $2 a ton to 1.90c., Pittsburgh, now effective at all mills, and there has been a fair amount of second quarter contracting at 1.90c., although the general tendency in all lines is to go slow in anticipating requirements. The fact that both mills and railroads are able to make fairly quick deliveries, and there being no indication of price advances except on plates, make for what steel men sometimes call "over the counter" buying rather than contracting. The New York Central will take bids March 29 on its second quarter steel, consisting of several thousand tons of plates, shapes, bars, sheets, wire products, axles, etc. One or two smaller Eastern roads have received bids on miscellaneous requirements, and the prices quoted on plates are said to have been uniform at 1.90c., Pittsburgh. The Standard Oil Co. of New Jersey is getting prices on 3000 tons of plates for second quarter. In structural steel, a good many projects are pending or will soon come into the market, one of the largest of the past week being a hotel for Fifth Avenue at Fifty-seventh Street, on the site of the Vanderbilt home; this job will take 9500 tons. Prices on all steel products show a fairly firm tendency, the only marked weakness being in sheets, on which concessions of $2, and in a few cases of $3 a ton, have been offered for prompt specifications. Steel bar makers have heard reports of quotations of 1.90c., Pittsburgh, on bars, but have been unable to verify their accuracy.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.34c. to 2.44c. per lb.; plates, 2.14c. to 2.24c.; structural shapes, 2.24c. to 2.34c.; bar iron, 2.24c.

Warehouse Business.—Gradual improvement in the number of orders and in the tonnages involved is reported by most jobbers. Although the usual spring purchasing of structural material out of stock has not yet developed to its full extent, a larger tonnage of plate business than usual is reported moving. Prices on all products are showing greater firmness and jobbers have stabilized the market on galvanized sheets at 5.65c. per lb. base as the minimum. Demand for all non-ferrous metals continues good. Antimony registered an advance of 1½c. to 2c. per lb. in the past week. Spelter has also advanced slightly. Prices on page 898. We quote boiler tubes per 100 ft. as follows:

Lap welded steel tubes, 2-in., $17.33; seamless steel, 2-in., $20.24; charcoal iron, 2-in., $25; 4-in., $67.

Cast Iron Pipe.—Municipal purchasing of water pipe continues in good volume and prices are fairly firm, except where French competition is encountered, when offers generally drop under the $50 mark, sometimes by a considerable margin. Among recent awards are: Saugerties, N. Y., about 1700 tons to the Warren Foundry & Pipe Co.; White Plains, N. Y., about 3400 tons of 6-in. to 24-in. to the Warren Foundry & Pipe Co.; Middletown, Conn., about 700 tons to the Donaldson Iron Co.; Albany, N. Y., 1500 tons to the Pont-a-Mousson works, represented by B. Nicoll & Co.; Sche-

Warehouse Prices, f.o.b. Buffalo

	Base Per Lb.
Plates and structural shapes	3.40c.
Mild steel bars	3.30c.
Cold-finished shapes	4.45c.
Rounds	3.95c.
No. 28 black sheets	4.60c.
No. 10 blue annealed sheets	3.90c.
No. 28 galvanized sheets	5.75c.
Common wire nails, base per keg	$3.90
Black wire, base per 100 lb	3.90

nectady, N. Y., several hundred tons of centrifugal pipe to the United States Cast Iron Pipe & Foundry Co. Dragonetti Brothers, 1323 Clinton Avenue, New York, were low bidders on a contract involving 500 tons of pipe for the Department of Water Supply, Gas and Electricity, New York. The current and prospective demand for cast iron pipe is in such good volume that no downward movement of the market is expected despite the situation in pig iron.

We quote pressure pipe per net ton, f.o.b. New York in carload lots, as follows: 6-in. and larger, $50.60 to $52.60; 4-in. and 5-in., $55.60 to $57.60; 3-in., $65.60 to $67.60; with $5 additional for Class A and gas pipe.

Coke.—Foundry coke continues fairly stable at $4.25 to $5.25 per net ton with certain brands held at $5.50 per ton, Connellsville. Medium sulphur tonnages, mostly in domestic sizes, are being offered for as low as $2.25 to $2.50 per ton, and plenty of distress tonnages are reported available. Rapid reduction of the number of ovens in operation in the Connellsville district is aiding in stabilization of the market. By-product continues at $9.50 per ton at the oven, or $10.50 to $11.52 delivered in the Newark and Jersey City districts.

Old Material.—Prices on all grades are unchanged and activity is still confined to moderate purchasing by brokers, but there is more of an undertone of strength than for several weeks. No. 1 heavy melting steel is still being purchased at $15.50 to $16 per ton, delivered eastern Pennsylvania consumers, and apparently a sufficient tonnage for present requirements is coming out at these prices. Borings and turnings are quite active, but prices show no advance. Specification pipe is being purchased at $16.25 and $16.50 per ton, delivered to a Lebanon, Pa., consumer and at $15.50 per ton, delivered to a Columbia, Pa., consumer. The present market seems to have about reached bottom and any sizable purchase by a consumer would probably be on a higher basis than the present. Railroad lists in this district, including those of the Interborough Rapid Transit Co., New York, the Long Island Railroad and the Boston & Maine, total about 5000 tons or more.

Buying prices per gross ton, New York, follow:

Heavy melting steel (yard)	$10.50 to $11.00
Heavy melting steel (railroad or equivalent)	12.00 to 12.75
Rails for rolling	12.75 to 13.00
Relaying rails, nominal	23.00 to 24.00
Steel car axles	19.50 to 20.00
Iron car axles	23.50 to 24.00
No. 1 railroad wrought	14.50 to 15.00
Forge fire	10.00 to 10.50
No. 1 yard wrought, long	13.50 to 14.00
Cast borings (steel mill)	9.75 to 10.25
Cast borings (chemical)	13.00 to 14.00
Machine shop turnings	9.75 to 10.25
Mixed borings and turnings	10.00 to 10.25
Iron and steel pipe (1 in. diam., not under 2 ft. long)	11.75 to 12.75
Stove plate (steel mill)	9.75 to 10.25
Stove plate (foundry)	11.25 to 11.75
Locomotive grate bars	11.25 to 11.75
Malleable cast (railroad)	16.00 to 17.00
Cast iron car wheels	13.50 to 14.00
No. 1 heavy breakable cast	12.50 to 14.50

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast	$17.00 to $17.50
No. 1 heavy cast (column, building material, etc.), cupola size	15.50 to 16.00
No. 2 cast (radiators, cast boilers, etc.)	14.50 to 15.00

Warehouse Prices, f.o.b. Cincinnati

	Base per Lb.
Plates and structural shapes	3.40c.
Bars, mild steel or iron	3.30c.
Reinforcing bars	3.30c.
Hoops	4.00c. to 4.25c.
Bands	3.95c.
Cold-finished rounds and hexagons	3.85c.
Squares	4.35c.
Open-hearth spring steel	4.75c. to 5.75c.
No. 28 black sheets	4.10c. to 4.30c.
No. 10 blue annealed sheets	3.60c.
No. 28 galvanized sheets	5.25c. to 5.40c.
Structural rivets	3.75c.
Small rivets	65 per cent off list
No. 9 annealed wire, per 100 lb	$3.00
Common wire nails, base per keg	2.95
Cement coated nails, base per keg	2.25
Chain, per 100 lb	7.55

	Net per 100 ft.
Lap welded steel boiler tubes, 2-in.	$18.00
4-in.	38.00
Seamless steel boiler tubes, 2-in.	19.00
4-in.	39.00

Cincinnati

Sheets Still Weak But Plates Stronger—Moderate Sales of Pig Iron

CINCINNATI, March 23.—While the demand for pig iron is not active, sales have been moderate in volume. With the major portion of the second quarter output of several producers already contracted for and with good shipments reported by other furnaces, there is little likelihood of a serious break in the price of foundry iron in the near future. Undoubtedly an important consumer would be able to obtain a concession on a sizable tonnage, but quotations on small lots would probably remain firm at $21, base Ironton. There has been a considerable movement of Tennessee iron, one sale totaling between 7000 and 8000 tons. Foundry iron from that State is steady at $21.50, base Birmingham. It is reported, but not confirmed, that Alabama iron has been sold in southern Indiana at less than $22, base Birmingham. However, no shading of the price has been noted in this market. The Standard Sanitary Mfg. Co., Pittsburgh, is understood to have purchased 1000 tons of southern Ohio iron for its Louisville, Ky., plant and will close for its second quarter requirements for Louisville within the next week. Automobile makers in the Detroit district are taking liberal quantities of Jackson County silvery iron, which is firm at $30.50, Jackson, for 8 per cent. Malleable grades continue to be affected by the willingness of a Cleveland producer to accept low prices. A Columbus, Ohio, melter bought 1500 to 2000 tons of malleable for second quarter. Few general inquiries are being sent out by consumers, who seem to prefer to negotiate quietly for their needs. The Louisville & Nashville is in the market for 930 tons of Northern and Southern foundry iron.

Based on freight rates of $3.69 from Birmingham and $1.89 from Ironton, we quote f.o.b. Cincinnati:

Alabama fdy., sil. 1.75 to 2.25 (base)	$25.69
Alabama fdy., sil. 2.25 to 2.75	26.19
Tennessee fdy., sil. 1.75 to 2.25	25.19
Southern Ohio silvery, 8 per cent	32.39
So. Ohio fdy., sil. 1.75 to 2.25	22.89
So. Ohio malleable (nominal)	$22.39 to 22.89

Reinforcing Bars.—While there is an absence of important projects, the number of small lettings has increased. Prices remain unchanged, with new billet bars selling at 2c., Cleveland, and rail steel bars at 1.90c., mill.

Warehouse Business.—Mild weather in the past few days has brought out a demand for structural shapes and plates. The movement of bars, however, has been slow. Sales of various grades of sheets have shown a decided improvement. Prices are steady.

Finished Material.—There has been a slight betterment in both specifications and orders, but numerous first quarter contracts will be carried over into the second quarter, because buyers have failed to take more than 60 to 70 per cent of their quotas. Since most mills are able to make deliveries within three or four weeks, consumers do not feel compelled to anticipate their future requirements. Although their stocks are well depleted, they are reluctant to purchase material other than that for their immediate needs. After experiencing the best spring season since 1920 agricultural implement manufacturers are slowing down production, and business from that source has fallen off considerably. Railroad buying has been active, the Louisville & Nashville having closed for 750 tons of plates and for a substantial amount of track accessories. The bar market is stronger at 2c., base Pittsburgh. Structural shapes are being offered at 1.90c. to 2c., base Pittsburgh, but little material is moving. Mills have been successful in establishing 1.90c. as the prevailing price on plates. Bookings of sheet mills have been disappointing this month. One producer in this territory is operating at 70 per cent of capacity and another at 75 per cent. Despite the strenuous efforts of the large mills to hold galvanized and blue annealed sheets at 4.60c. and 2.50c., base Pittsburgh, respectively, consumers have gained concessions of $2 a ton in some cases. Black sheets

likewise have suffered from severe competition and have been sold at 3.25c., base Pittsburgh, although the regular schedule adhered to by several important sellers is 3.35c. Bookings of wire goods have been light. Common wire nails continue to sell at $2.65 per keg, and plain wire at $2.50 per 100 lb., Pittsburgh or Ironton. The Cleveland, Cincinnati, Chicago & St. Louis Railway will take bids until April 2 on its second quarter requirements in steel locomotive and car axles, steel billets, steel tubes, common wire nails, woven wire fence and galvanized barbed wire. It is also expected to buy 850 tons of bars, plates and shapes for next quarter. The number of structural lettings is slowly increasing, but fabricators are still operating on restricted schedules.

Coke.—Shipments of by-product foundry coke in the first 20 days of March exceeded those for the same period last month by 8 per cent. Although the end of the domestic coke season is at hand, the market has been remarkably well sustained. While no announcement regarding April domestic coke prices has been made, it is expected that by-product companies will reduce their quotations to either $5 or $5.50, ovens, which represents a decrease of $2 to $2.50 a ton. An Indiana gas company is in the market for from 4000 to 7000 tons of furnace coke, and will probably close with a Wise County producer. For spot shipment Wise County furnace grades are selling at $3.75, ovens, but coke for forward delivery is commanding $4 to $4.50, ovens. Connellsville foundry can be purchased for as low as $4, ovens. High grade coke, from that territory, however, has brought $5.50 to $6, ovens. The Louisville & Nashville is inquiring for 725 tons of foundry.

Based on freight rates of $2.14 from Ashland, Ky., $3.53 from Connellsville, and $2.59 from Wise County ovens and New River ovens, we quote f.o.b. Cincinnati: Connellsville foundry, $7.53 to $9.53; Wise County foundry, $7.34 to $7.59; New River foundry, $9.59 to $10.09; by-product foundry, $10.64.

Old Material.—Mill buying is confined to small tonnages. The Ashland, Ky., works of the American Rolling Mill Co. is again accepting shipments on contracts. The Portsmouth, Ohio, works of the Wheeling Steel Corporation also is taking its contract requirements, but is not buying any additional material. With the exception of railroad malleable, all items are quiet and quotations are practically nominal. A recession in the demand for foundry grades has been a depressing factor in the past 10 days. Heavy melting steel remains at $13.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

	Per Gross Ton	
Heavy melting steel		$13.00
Scrap rails for melting	$13.00 to	13.50
Short rails	18.00 to	18.50
Relaying rails	27.00 to	27.50
Rails for rolling	14.00 to	14.50
Old car wheels	12.50 to	13.00
No. 1 locomotive tires	16.50 to	17.00
Railroad malleable	15.50 to	16.00
Agricultural malleable	14.50 to	15.00
Loose sheet clippings	8.00 to	9.00
Champion bundled sheets	10.00 to	10.50
	Per Net Ton	
Cast iron borings	8.00 to	8.50
Machine shop turnings	7.00 to	7.50
No. 1 machinery cast	19.00 to	19.50
No. 1 railroad cast	14.50 to	15.00
Iron axles	22.00 to	22.50
No. 1 railroad wrought	10.00 to	10.50
Pipes and flues	8.50 to	9.00
No. 1 busheling	9.50 to	10.00
Mixed busheling	8.00 to	8.50
Burnt cast	8.50 to	9.00
Stove plate	9.50 to	10.00
Brake shoes	10.00 to	10.50

Warehouse Prices, f.o.b. Cleveland

	Base per Lb.
Plates and structural shapes	3.00c.
Mild steel bars	3.00c.
Cold-finished rounds and hexagons	3.90c.
Cold-finished flats and squares	4.40c.
Hoops and bands	3.65c.
No. 28 black sheets	4.10c.
No. 10 blue annealed sheets	3.25c.
No. 28 galvanized sheets	5.25c.
No. 9 annealed wire, per 100 lb.	$3.00
No. 9 galvanized wire, per 100 lb.	3.45
Common wire nails, base per keg	3.00

Cleveland

Plates, Galvanized and Blue Annealed Sheets Stronger—Iron Ore Unchanged

CLEVELAND, March 23.—The volume of finished steel business in this territory continues fairly heavy, and the tonnage entered this month will show a gain over either of the two preceding months. This is made up of a steady stream of orders, mostly in small lots, since consumers as a rule are not stocking up. Little business is being placed in second quarter contracts, and consumers generally are not showing much interest in making commitments for the quarter. Deliveries have tightened up somewhat on some sizes of steel bars, and some of the mills cannot make as good shipments on plates as a few weeks ago. As buyers are still depending on the mills to supply material promptly, the inability of some to make shipments as quickly as desired has resulted in shifting of orders to sources of supply that can make more prompt deliveries.

There has been some slowing down in the automotive industry this month, and car builders are not ordering material as far ahead as they were a few weeks ago. This recession has affected the automobile body builders, some of whom have scaled down specifications. However, automobile parts manufacturers in this territory have not curtailed operations or cut down their orders for steel. Reports from metal-working industries, outside of the automotive field, indicate good operations.

Efforts to place plates firmly on a 1.90c., Pittsburgh, basis appear to have been successful in this market. Steel bars are firm at 2c., Pittsburgh, but mills are making little effort to get 2.10c., except for very small lots on which the quantity differential usually applies. On structural material 1.90c., Pittsburgh, applies on round lots, although considerable business is being taken at 2c.

Inquiry in the building field has improved. Locally construction work is virtually at a standstill because of a strike of common labor, and this has caused the holding up of some shipments of steel. The Texas Co. has placed oil tanks with the Petroleum Iron Works, requiring 300 tons of plates, which will be supplied by an Eastern mill.

Iron Ore.—Lake Superior ore prices that prevailed last year have been re-established for 1926, as announced in another column. A fairly lively market followed the naming of prices, and considerable open market tonnage has been booked for the season. During February furnaces consumed 4,389,375 tons of Lake Superior ore, a decrease of 653,417 tons as compared with January. In February, 1925, the amount consumed was 4,999,696 tons. The amount of Lake ore in furnace yards March 1 was 21,592,532 tons, and the amount in furnace yards and on docks was 27,676,323 tons, as compared with 26,207,081 tons on the same date a year ago. On Feb. 28 there were 188 furnaces in blast using Lake ore, as compared with 186 on Jan. 31.

Pig Iron.—Inquiry showed some gain the past week, although sales were not much larger in volume than during the previous week. There is yet no sign of a lively buying movement for the second quarter, and further weakness has developed in this territory. Many small orders for foundry iron for either prompt shipment or for the second quarter were taken in the northern Ohio territory by a Cleveland interest during the week. However, a considerable number of northern Ohio foundries will carry over enough first quarter iron to last them until June. One local producer is quoting $20, Valley furnace, on foundry and malleable iron for shipment outside of Cleveland, and much of the business placed during the week was taken at that price. Some of the Valley producers are still holding to $20.50, furnace, although there are reports that Valley iron has been sold at as low as $19.50. The price in Cleveland for local delivery is unchanged at $21, furnace, and there appears to be no

deviation from the price of $22, furnace, that has been prevailing recently in western Ohio, Michigan and Indiana. The General Electric Co. is inquiring for 1800 tons of foundry and malleable iron for its Erie works for the second quarter and the Pennsylvania Railroad for 4000 to 5000 tons of foundry iron for its Altoona shops. A Canton, Ohio, foundry has purchased 1000 tons of malleable iron. It is reported that the Westinghouse & Electric Mfg. Co.'s inquiry for 2600 tons of iron for its Cleveland plant is still pending.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a $3.02 freight rate from Jackson and $6.01 from Birmingham:

Basic, Valley furnace	$20.00
N'th'n No. 2 fdy., sil. 1.75 to 2.25	21.50
Southern fdy., sil. 1.75 to 2.25	28.01
Malleable	21.50
Ohio silvery, 8 per cent	33.52
Standard low phos., Valley furnace	$27.50 to 28.00

Semi-Finished Steel.—A few consumers have placed contracts for sheet bars and slabs for the second quarter at the present prices, which are being quoted by Cleveland and Youngstown mills, and several inquiries for sheet bars are pending for that delivery. A local mill has taken some second quarter business subject to prices that rule at the time of shipment. A few spot shipment sales are also being made. The leading local producer has increased production to 50 per cent of capacity.

Sheets.—Prices appear to be somewhat firmer than for several weeks, although a few of the smaller mills are still shading regular quotations. Strength was added to the market the past week by a closer adherence to Pittsburgh as a basing point instead of using a Youngstown or other Ohio basing point, which has been rather common practice with some of the mills. Few consumers are placing second quarter contracts. On black sheets, 3.25c., Pittsburgh, is still being quoted rather commonly, and while 2.40c. on blue annealed and 4.50c. on galvanized sheets have not disappeared, these prices are by no means general.

Reinforcing Bars.—New inquiry is light, and the shipment of material for building work in Cleveland has been held up because of a strike of common labor. Rail steel bars are unchanged at 1.80c., mill.

Warehouse Business.—Demand for steel bars, plates and structural material out of stock is heavy, because many consumers are depending on warehouses for small lots instead of carrying material in stock. Prices are firm. Stock orders for sheets are light.

Old Material.—A Cleveland consumer has purchased 2000 tons of mixed borings and short turnings at $12, delivered, and dealers are buying against their contracts for this material at $11.50 to $11.75. This is the only activity reported. The market is weak, although prices have not declined any further. The supply of scrap is much in excess of the present demand. The more general use of steel bodies for automobiles has resulted in a noticeable increase in the amount of scrap that is coming from the Detroit automobile plants.

We quote dealers' prices f.o.b. Cleveland per gross ton:

Heavy melting steel	$14.25 to $14.50
Rails for rolling	16.75 to 17.00
Rails under 3 ft	18.50 to 19.00
Low phosphorus melting	17.75 to 18.25
Cast iron borings	11.00 to 11.25
Machine shop turnings	10.75 to 11.00
Mixed borings and short turnings	11.00 to 11.25
Compressed sheet steel	13.25 to 13.50
Railroad wrought	13.75 to 14.25
Railroad malleable	20.00 to 20.50
Light bundled sheet stampings	11.75 to 12.00
Steel axle turnings	14.00 to 14.50
No. 1 cast	17.50 to 18.00
No. 1 busheling	11.00 to 11.25
Drop forge flashings	13.25 to 13.50
Railroad grate bars	13.25 to 13.50
Stove plate	13.25 to 13.50
Pipes and flues	11.50 to 12.00

Bolts, Nuts and Rivets.—The leading local rivet manufacturer has opened its books for second quarter contracts at the psesent price of $2.60 per 100 lb., Pittsburgh, for large rivets, and 70 and 10 per cent off list, Pittsburgh or Cleveland, for small rivets. The demand for rivets shows a little improvement. Bolt and nut makers are closing considerable business in second quarter contracts at present prices. Although the demand is fair, makers would like more business on their books.

Alloy Steel.—Some of the mills are not booked so far ahead as a few weeks ago, owing to the cautious policy that is being followed by automobile manufacturers in sending out specifications. While prices are unchanged, $3.50 per 100 lb. has become rather general on nickel chromium steel, Series 3100, and $4.50 per 100 lb. on 3½ per cent nickel steel.

Philadelphia

Basic Iron Sale of 25,000 Tons and Large Sales to Foundries

PHILADELPHIA, March 23.—Buying of pig iron for second quarter opened up in a larger way in the past week, the principal transaction involving 25,000 tons of basic iron for a nearby steel company at a price 50c. a ton under that of a 10,000-ton sale reported a week ago. On a 5000-ton sale to a Newark foundry the $22 price on foundry iron was shaded 50c. a ton. Pig iron sales of the week amounted to 50,000 tons or more. With pig iron slightly weaker, the scrap market showed a slight gain, heavy melting steel being 50c. a ton up at $16.50, and sales, which may be made at $17, are pending.

Steel buying shows a fairly good aggregate of day-to-day ordering, but the volume of second quarter contracting is small. There is little incentive for the buyer to cover for more than immediate requirements, as prices, except on plates, show no signs of going higher, and in some lines there is a slight tendency toward concessions, at least on prompt specifications. Steel plant operations continue at a fairly high rate. The Bethlehem Steel Co. is running at about 85 per cent and expects that this rate will be continued at least through April. The company now has two blast furnaces and four large open-hearth furnaces on at Coatesville, this being the best operation at that plant in some time.

Pig Iron.—The eastern Pennsylvania pig iron trade has had an active week, sales totaling 50,000 tons or more. The business was done with only a few consumers. The largest sale was 25,000 tons of basic iron for April-May to an Eastern plate mill at $21.75, delivered, this price being 50c. a ton below that obtained on 10,000 tons sold by two furnaces to another steel company the week before. Two furnace companies divided the 25,000-ton order. A 2000-ton sale of basic

Warehouse Prices, f.o.b. Philadelphia

	Base per Lb.
Tank steel plates, ¼-in. and heavier	2.80c. to 3.00c.
Tank steel plates, ⅜-in.	3.00c.
Structural shapes	2.75c. to 2.90c.
Soft steel bars, small shapes and iron bars (except bands)	2.90c. to 3.20c.
Round-edge iron	3.50c.
Round-edge steel, iron finished, 1½ x 1½ in.	3.50c.
Round-edge steel, planished	4.30c.
Reinforcing steel bars, square, twisted and deformed	3.00c.
Cold-finished steel, rounds and hexagons	4.00c.
Cold-finished steel, squares and flats	4.50c.
Steel hoops	4.00c. to 4.25c.
Steel bands, No. 12 gage to ⅛-in., inclusive	3.75c. to 3.90c.
Spring steel	5.00c.
No. 28 black sheets	4.65c.
No. 10 blue annealed sheets	3.50c.
No. 28 galvanized sheets	5.85c.
Diamond pattern floor plates	
¼-in.	5.30c.
⅜-in.	5.50c.
Rails	3.20c.
Tool steel	8.50c.
Norway iron	6.50c.

iron brought slightly over $22.50 delivered. A cast iron pipe company bought 6000 tons of No. 2 plain iron at $22, furnace, and the $22 price has held on other sales in this immediate district, but in the New York territory there have been concessions. A Newark foundry bought 5000 tons for second quarter at a base price of $21.50, furnace. Another large transaction was 7000 tons of Dutch iron sold to an Elizabeth, N. J., manufacturer at a shade under $22, Philadelphia. A Chester, Pa., steel castings plant bought 1000 tons of low phosphorus iron at $23.75, delivered. The Pennsylvania Railroad is in the market for 4000 tons of its special grades and the Baldwin Locomotive Works is inquiring for 1000 tons of "floor" iron. Most of the furnaces of this district now have comfortable backlogs for second quarter, considering the tonnage that will be carried over from first quarter, and further concessions fom $22 on foundry iron are said to be unlikely. One furnace company has had to turn down some business because of inability to make the desired deliveries. The Bethlehem Steel Co., in putting on an additional blast furnace at Coatesville, did so partly because of a shortage of iron for shipment to its foundry customers.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rates varying from 76c. to $1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	$22.76 to $23.63
East. Pa. No. 2X, 2.25 to 2.75 sil.	23.26 to 24.13
East. Pa. No. 1X	23.76 to 24.63
Virginia No. 2 plain, 1.75 to 2.25 sil.	27.67 to 28.67
Virginia No. 2X, 2.25 to 2.75 sil.	28.17 to 29.17
Basic, delivered eastern Pa.	21.75 to 22.50
Gray forge	22.00 to 22.50
Malleable	23.00 to 23.50
Standard low phos. (f.o.b. furnace)	22.50 to 23.50
Copper bearing low phos. (f.o.b. furnace)	23.50 to 24.00

Ferromanganese.—Two makers of ferromanganese have made a further reduction of $5 a ton, the new price being $90, furnace. A third maker has not followed this reduction, as it does not desire any more business at the prevailing price, which is said to be below the cost of production. Fairly heavy sales have been made on a protection against decline basis.

Billets.—Demand for billets is very light, and sales are confined to small lots. Prices are unchanged at $35 for rerolling billets and $40 for forging billets, Pittsburgh basis.

Plates.—Every plate mill in the East is now quoting 1.90c., Pittsburgh, for second quarter, but it is still possible to buy at 1.80c. for immediate specification. A fairly good tonnage has been entered at 1.80c., and there have been a number of second quarter contracts at 1.90c., one of 2500 tons and another of 1000 tons being among the largest.

Structural Material.—Mills are getting a fairly good number of small orders and liberal specifications against contracts, but new building projects involving large tonnages are few. A building for the Sesqui-Centennial taking 2500 tons has been awarded to a Pittsburgh fabricator; two small buildings totaling 500 tons are pending. The price situation shows no change. Sales are being made at 1.80c. to 1.90c., Pittsburgh, but the second quarter contract price is 1.90c.

Bars.—Although steel bars remain fairly firm at 2c., Pittsburgh, with some second quarter contracts having been entered at that figure, concessions of $2 a ton for prompt specifications have been given. A sale of 70 tons of one size was made at 1.90c. Deliveries on bars range from one to four weeks, depending on sizes and quantity. Stone & Webster are taking bids on 5000 tons of concrete reinforcing bars for the Conowingo water power project on the Pennsylvania-Maryland border. Bar iron is still quoted at 2.22c., Philadelphia.

Sheets.—Concessions of $2 a ton on black and galvanized sheets are not infrequent, but the mills are holding for full prices on second quarter contracts. Blue annealed appears to be fairly firm at 2.50c., Pittsburgh.

Warehouse Business.—Aside from occasional concessions on steel bars, prices of steel products out of stock are being fairly well maintained. Imported bars figure largely in the weakness of that material.

Imports.—Pig iron receipts continue fairly heavy, 7931 tons having been brought in at this port last week from the following countries: England, 3750 tons; Germany, 2000 tons; India, 1296 tons; France, 535 tons; the Netherlands, 350 tons. Other imports were as follows: Iron ore from Germany, 270 tons; steel strips from England, 22 tons; structural steel from Belgium, 123 tons; steel bars from Belgium, 19 tons; steel blooms from France, 515 tons; steel bars from the Netherlands, 137 tons.

Old Material.—Sales of heavy melting steel have been made at $16.50, and it apparently is no longer possible to buy below that figure. A steel company today (Tuesday) negotiated for a fairly large tonnage and was willing to pay $16.50, but brokers were asking $17; so no business was done. It is probable, however, that the transaction will be closed before the end of the week. Grades other than heavy melting steel have not changed in price, but the market has a slightly firmer undertone.

We quote for delivery, consuming points in this district, as follows:

No. 1 heavy melting steel		$16.50
Scrap rails		16.50
Steel rails for rolling	17.00 to	17.50
No. 1 low phos., heavy, 0.04 per cent and under	20.00 to	20.50
Couplers and knuckles	19.00 to	19.50
Rolled steel wheels	19.00 to	19.50
Cast iron car wheels	17.50 to	18.00
No. 1 railroad wrought	17.00 to	17.50
No. 1 yard wrought	16.50 to	17.00
No. 1 forge fire	14.50 to	15.00
Bundled sheets (for steel works)		14.00
Mixed borings and turnings (for blast furnace)	13.00 to	13.50
Machine shop turnings (for steel works)		14.00
Machine shop turnings (for rolling mill)	14.00 to	14.50
Heavy axle turnings (or equivalent)		15.00
Cast borings (for steel works and rolling mill)		14.00
Cast borings (for chemical plant)	15.50 to	16.00
No. 1 cast	17.50 to	18.50
Heavy breakable cast (for steel works)	16.00 to	16.50
Railroad grate bars		14.50
Stove plate (for steel works)		14.50
Wrought iron and soft steel pipes and tubes (new specifications)	15.50 to	16.00
Shafting	21.00 to	22.00
Steel axles	22.00 to	23.00

REINFORCING STEEL

More Than 10,000 Tons of Bars Pending, Including 5000 for Conowingo Dam

The outstanding inquiry for concrete reinforcing bars is that for the Conowingo water power project in Pennsylvania, amounting to 5000 tons. Bids are being taken by Stone & Webster. The total of bars pending is more than 10,000 tons. The week's awards total about 4500 tons, and are as follows:

PITTSBURGH, 500 tons, William Penn Garage, to Kalman Steel Co.

PITTSBURGH, 300 tons, Press Publishing Co., to Carlem Engineering Co., Pittsburgh.

CINCINNATI, 100 tons, Boye & Emmes Machine Tool Co., to Bourne-Fuller Co.

INDIANAPOLIS, IND., 500 tons, War Memorial, to Truscon Steel Co.

CHICAGO, 240 tons rail steel, Crane Co., to Calumet Steel Co.

CHICAGO, 100 tons rail steel, Independent Order of Vikings, to Calumet Steel Co.

CHICAGO, 110 tons, Norwegian-American Hospital, to Concrete Engineering Co.

FORT SNELLING, MINN., 800 tons, Veterans' Hospital, to Sheffield Steel Co., Kansas City, Mo.

NEW YORK, 300 tons, Savoy Hotel, to Jones & Laughlin Steel Corporation.

NEW YORK, 130 tons, subway, Section 2, Route 102, to McClintic-Marshall Co.

BROOKLYN, 600 tons, Sixtieth Street sewer, to European mill in addition to 500 tons previously reported; placed by P. J. Carlin Construction Co.

BROOKLYN, 200 tons, warehouse, Security Fireproof Storage Co., to Kalman Steel Co.

NEW YORK, 650 tons, Coney Island repair shop, Interborough Rapid Transit Co., in addition to 150 tons placed in December; to Concrete Steel Co.

Reinforcing Bars Pending

Inquiries for reinforcing steel bars include the following:

LEXINGTON, KY., tonnage unknown, building for Good Samaritan Hospital.

CHICAGO, revised estimate 455 tons, University of Chicago Stadium.

CHICAGO, 400 tons, Theodore Roosevelt High School, general contractor, Paaschen Brothers.

CHICAGO, 120 tons, Hyde Park Baptist Church and parish house; general contractor, Krietzer Construction Co.

EVANSTON, ILL., 800 tons, Northwestern University Stadium.

MILWAUKEE, 450 tons, inquiry from United States Engineer's Office.

ST. PETERSBURG, FLA., 600 tons, harbor improvements; general contract awarded to Raymond Concrete Pile Co., New York.

NEW YORK, 305 tons, plant, Fada-Andrea Radio Corporation; general contract awarded to White Construction Co., New York.

SOUTH ORANGE, N. J., 175 tons, Maplewood High School; Bowee Milliment Co., Union Hill, N. J., low bidder on general contract.

CLEVELAND, 300 tons, Halle Brothers Co., store addition.

PENNSYLVANIA, 5000 tons, Conowingo dam and water power project.

VENEZUELA, MARACAIBO, 2000 tons, sea wall; general contract awarded to Raymond Concrete Pile Co., New York.

FABRICATED STEEL

Awards Nearly 33,000 Tons—9,500 Tons Pending for Hotel in New York

The week's structural steel awards of close to 33,000 tons are made up mostly of small jobs. The largest is 3200 tons of fabricated pipe for a project at Medford, Ore. Among 25,000 tons of pending projects, the largest is 9500 tons for a hotel to be built at Fifth Avenue and Fifty-seventh Street, New York. Awards follow:

NEW YORK, 3698 tons reported by the Structural Steel Board of Trade in the following jobs: Theater at Tremont and Jerome Avenues, a savings bank building at Flatbush Avenue and Duryea Place, Brooklyn, and alterations to a theater, to George A. Just Co.; loft building at Fifth Avenue and Twenty-eighth Street and alterations and an addition to an office building at 9-11 East Fortieth Street, to Taylor-Fichter Steel Construction Co.; parish house for St. Mark's M. E. Church, Brooklyn, to Lehigh Structural Steel Co.

NEW YORK, 560 tons, apartment building at 68 Thayer Street, to Alpha Iron Works.

NEW YORK, 450 tons, hospital building at 237 East Eleventh Street, to Jones & Laughlin Steel Corporation.

NEW YORK, 1600 tons, addition to Fourteenth Street power house of the New York Edison Co., to American Bridge Co.

NEWARK, N. J., 200 tons, for work being done by the Foundation Co. at the Prudential Building, to American Bridge Co.

NEWARK, 400 tons, work for Public Service Corporation of New Jersey, to American Bridge Co.

EASTON, PA., 260 tons, Mack Printing Co. building, to Jones & Laughlin Steel Corporation.

PHILADELPHIA, 600 tons, railings and other material for Delaware River Bridge, to Belmont Iron Works.

PHILADELPHIA, 2500 tons, Transportation Building at Sesqui-Centennial Exposition, to Fort Pitt Bridge Works.

PERTH AMBOY, N. J., 750 tons, four bridges for the Central Railroad of New Jersey, to McClintic-Marshall Co.

BOSTON, 300 tons, to Boston Elevated, power station addition, to New England Structural Co.

BOSTON, 219 tons, Tremont Street bridge extension, to New England Structural Co.

PITTSBURGH, 450 tons, Webster Hall apartment hotel, to Pittsburgh-Des Moines Steel Co.

WEST VIRGINIA, 300 tons, highway bridges in Wyoming, Braxton and Kanawha counties, to Vincennes Bridge Co., Vincennes, Ind.

LOUISVILLE, 350 tons, First National Bank, to Snead Architectural Iron Works, Louisville.

JACKSONVILLE, FLA., 1000 tons, George Washington Hotel, to an unnamed fabricator.

HOUSTON, TEX., 500 tons, freight station for Southern Pacific, to Houston Structural Steel Co.

DETROIT, 600 tons, airplane factory, for Ford Motor Co., to Whitehead & Kales Co.

IRONTON, OHIO, 250 tons, boiler house and kiln for Alpha Portland Cement Co., to Worden-Allen Co.

CHICAGO, 1250 tons, University of Chicago stadium, to McClintic-Marshall Co.

RACINE, WIS., 200 tons, Sixth Street viaduct, to Wisconsin Bridge & Iron Co.

DULUTH, MINN., 130 tons, coal handling plant for Zenith Furnace Co., to Worden-Allen Co., Milwaukee.

MASHWAUK, MINN., 150 tons, head frame for Wisconsin Steel Co. mines, to Lakeside Bridge & Steel Co.

DOUGLAS, ARIZ., 2500 tons, smelter, for Phelps-Dodge & Co., to Kansas City Structural Steel Co.

CLARKDALE, ARIZ., 1100 tons, concentrator for United Verde Copper Co., to McClintic-Marshall Co.

SAN FRANCISCO, 2400 tons, Fox Theater, to Dyer Brothers Golden West Iron Works, Inc.

SAN FRANCISCO, 200 tons, apartment, to Central Iron Works.

SACRAMENTO, CAL., 150 tons, grandstand, to Golden Gate Iron Works, San Francisco.

SAN JOSE, CAL., 300 tons, theater, to Golden Gate Iron Works.

RICHMOND, CAL., 100 tons, bank, to Herrick Iron Works, Oakland.

SAN BERNARDINO, CAL., 100 tons, California Building, to McClintic-Marshall Co.

SANTA MONICA, CAL., 170 tons, telephone building, to McClintic-Marshall Co.

SAN RAFAEL, CAL., 1600 tons, pipe line, to Western Pipe & Steel Co. of California.

MOUNT SHASTA, CAL., 100 tons, pipe line, to James Currie, contractor's letting.

RIVERSIDE, CAL., 100 tons, Gage Canal pipe line, to Lacey Mfg. Co.

LOS ANGELES, 1100 tons, Beaux Arts Building, to Llewellyn Iron Works.

LOS ANGELES, 1000 tons, theater for Petroleum Securities Co., to Llewellyn Iron Works.

MEDFORD, ORE., 3200 tons, pipe line, to Beall Tank & Pipe Co., Portland.

THE DALLES, ORE., 500 tons, for pipe line, to Beall Tank & Pipe Co.

BEND, ORE., 1000 tons, pipe line, to Beall Tank & Pipe Co.

SEATTLE, 300 tons, tank work for Great Northern Railroad, to Puget Sound Steel & Machinery Depot, Seattle.

SEATTLE, 300 tons, standpipe, to Beall Tank & Pipe Co.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

NEW YORK, 9500 tons, 42-story hotel at Fifth Avenue and Fifty-seventh Street.

NEW YORK, 500 tons, addition to United States Express Building, 2 Rector Street.

NEW YORK, 1100 tons, Nurses' Home for Columbia Presbyterian Hospital.

JAMAICA, L. I., 1000 tons, Mary Immaculate Hospital.

VENTNOR, N. J., 250 tons, public school.

PHILADELPHIA, 500 tons, Palace of Fine Arts and Educational Building for Sesqui-Centennial Exposition.

CAMDEN, N. J., 800 tons, Cooper River bridge.

WARREN, OHIO, 250 tons, Reeves apartment house.

BOSTON, 473 tons, store and office building, West Street.

FRAMINGHAM, MASS., 180 tons, rubber manufacturing plant.

HUDSON, MASS., 470 tons, previously reported as 300 tons, Firestone Rubber Co. addition.

PITTSBURGH, 1200 tons, General Forbes Hotel, Sixth Street and Penn Avenue.

LOUISVILLE & NASHVILLE RAILROAD, 100 tons, turntable; bids close April 1.

CINCINNATI, tonnage unknown, building for E. Kahn & Sons; Henschien & McLaren, Chicago, architects.

CHARLOTTE, N. C., 400 tons, apartment building.

MIAMI, FLA., 1500 tons, Ingraham office building.

JACKSONVILLE, FLA., 500 tons, theater.

GARY, IND., 500 tons, Knights of Columbus.

WHITING, IND., 750 tons, Standard Oil Co.

OMAHA, NEB., 300 tons, Kirkpatrick Brothers, store.

NEW YORK CENTRAL, bridges, 3500 tons.

CROCKETT, CAL., 450 tons, school; bids April 3.

OAKLAND, CAL., 1200 tons, Scottish Rite Temple.

Beehive coke produced in the week ended March 6 is reported by the United States Bureau of Mines at 265,000 net tons, a considerable drop from the 320,000 tons of the preceding week. Production of 1926 through March 6 was 3,046,000 tons, compared with 2,425,000 tons to the same date in 1925.

NON-FERROUS METALS

The Week's Prices

Cents per Pound for Early Delivery

	Copper, New York		Straits Tin (Spot)	Lead		Zinc	
March	Lake	Electrolytic*	New York	New York	St. Louis	New York	St. Louis
17.....	14.25	13.95	66.00	8.35	8.00	7.80	7.45
18.....	14.25	13.95	65.12½	8.35	8.00	7.85	7.50
19.....	14.25	13.95	65.25	8.37½	8.10	7.85	7.50
20.....	14.25	13.95	....	8.37½	8.10	7.82½	7.47½
22.....	14.25	13.87½	65.12½	8.37½	8.10	7.82½	7.47½
23.....	14.25	13.87½	65.00	8.37½	8.10	7.77½	7.42½

*Refinery quotation; delivered price ¼c. higher.

New York

NEW YORK, March 23.

The copper and zinc markets are inactive and rather weak, while the tin and lead markets are active and strong. Buying of copper is light and prices are lower. There has been heavy buying of tin but quotations have sagged a little. Large orders for lead have resulted in higher prices. There is very little demand for zinc.

Copper.—New business in electrolytic copper continues very light, but specifications on contract for March metal continue a feature. Some consumers are even asking for April metal. In the week quotations have declined until the entire market is now on a basis of 14.12½c., delivered in the Connecticut valley. Practically all producers are quoting this price, although one or two maintained until yesterday a minimum of 14.25c. Consumers are well covered for March and fairly well into April, but it is believed that they must resume buying soon for April and May requirements. With consumers and producers well booked and with the London market lower, the slowness in demand is natural. The new export association is practically ready to function and this, it is believed, will tend to stabilize prices here and abroad. Lake copper is quoted at 14.25c., delivered.

Tin.—Another week of large sales has passed, the total running up to 1700 to 1800 tons. Sales were well spread over the week with a liberal proportion stipulating rather far-future deliveries, including April-May shipment from the East, or July-August arrival here. This character of the buying was a feature. Spot and March metal continues in scant supply, with April likewise but to a less degree. Supplies of tin in general are short at the present time and, if the truth is told, this condition will prevail until July at least, for it is stated that March shipments from the Straits will average only 3500 to 4000 tons; April shipments, not more than 4500 to 5000 tons, which would mean a shortage until the May shipments or the July arrivals. Unless there shall be more Banca, more Chinese or more English tin available, the present shortage, it is pointed out, will last until well into the middle of the year and will mean premiums on prompt metal and liberal discounts on futures. The market today was quite dead, with spot Straits tin quoted at 65c., New York. London prices, due to a speculative drive against the market, were about £5 per ton lower than a week ago, with spot standard quoted at £292 5s., future standard, £283 10s. and spot Straits at £293 10s. The Singapore price today was £287 5s. Arrivals thus far this month were 2605 tons with 5060 tons reported afloat.

Lead.—For the first week in about a month there has been no reduction in prices and the contract price of the leading interest continues unchanged at 8.20c., New York. In the outside market, however, quotations have advanced to 8.10c., St. Louis, or 8.35c. to 8.37½c., New York. The metal is moving in good volume and sales have been large. The March output has been practically cleaned up and this is also nearly true of April. The long deferred buying by consumers is the reason for the change. One rather mystifying aspect, however, is that the London market is declining while ours is advancing. On the one hand business is bad there and there is plenty of prompt metal, but on the other hand there is the curtailment of the Australian output and the stronger American market.

Zinc.—Very little can be said about this market. Production has not been sufficiently curtailed, nor has buying been large enough to stimulate the market. Quotations are a little stronger than a week ago, with prime Western quoted at 7.40c. to 7.45c., St. Louis, and 7.75c. to 7.80c., New York.

Nickel.—Wholesale lots of ingot nickel are quoted at 35c. with shot nickel 36c. and electrolytic nickel at 39c. per lb.

Antimony.—Chinese metal for spot and early delivery is higher than a week ago at 20.50c., New York, duty paid. March arrival is quoted on the same basis. May arrival is quoted at 19.12½c.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is obtainable as ingots at 27c. to 28c. per lb., delivered.

Old Metals.—Business is erratic and values are unchanged. Dealers' selling prices, in cents per lb., are as follows:

Copper, heavy and crucible	13.75
Copper, heavy and wire	13.00
Copper, light and wire	11.75
Heavy machine composition	10.00
Brass, heavy	9.00
Brass, light	7.75
No. 1 red brass or composition turnings	9.00
No. 1 yellow rod brass turnings	9.25
Lead, heavy	7.25
Lead, tea	6.25
Zinc	5.00
Cast aluminum	19.50
Sheet aluminum	19.50

Chicago

MARCH 23.—This market is showing greater activity and tin, lead, zinc and antimony have advanced. The demand for copper is steady and the price is unchanged. Tin is particularly strong and antimony has advanced, not wholly due to the increase in demand, but to the fact that stocks in the hands of dealers are low. Although greater interest is being shown in old metals the current supply is adequate and prices are unchanged. We quote, in carload lots: Lake copper, 14.35c.; tin, 66.50c.; lead, 8.20c.; zinc, 7.60c.; in less than carload lots, antimony, 22c. On old metals we quote copper wire, crucible shapes and copper clips, 10.25c.; copper bottoms, 9.25c.; red brass, 9c.; yellow brass, 8c.; lead pipe, 6.50c.; zinc, 5c.; pewter, No. 1, 37c.; tin foil, 14c.; block tin, 52c.; aluminum, 19.50c.; all being dealers' buying prices for less than carload lots.

Non-Ferrous Rolled Products

Prices on brass, bronze and copper products have remained unchanged since they were advanced ¼c. per lb. as of Feb. 5, except copper wire which was reduced ¼c. last week. Zinc sheets, after remaining at 12c. per lb. for over 12 weeks, have been reduced to 11¾c. Lead full sheets have been reduced another ½c. per lb. on top of a reduction of ½c. last week, and now stand at 11¾c. For New York warehouse prices see page 898.

List Prices Per Lb., f.o.b. Mill

On Copper and Brass Products, Freight Up to 75c. Per 100 Lb. Allowed on Shipments of 500 Lb. or Over

Sheets	
High brass	19⅛c.
Copper, hot rolled	22¾c.
Zinc	11¾c.
Lead (full sheets)	11¾c.
Seamless Tubes	
High brass	23¾c.
Copper	24½c.
Rods	
High brass	16⅞c.
Naval brass	19⅝c.
Wire	
Copper	16¼c.
High brass	19⅝c.
Copper in Rolls	21⅝c.
Brazed Brass Tubing	27⅛c.

Aluminum Products in Ton Lots

The carload freight rate is allowed to destinations east of the Mississippi River and also allowed to St. Louis on shipments to destinations west of that river.

Sheets, 0 to 10 gage, 3 to 30 in. wide	37½c.
Tubes, base	48c.
Machine rods	34c.

PERSONAL

John B. Shaub has been appointed general superintendent in charge of works of the Wellman-Seaver-Morgan Co., Cleveland, effective March 15. He was born at Lancaster, Pa., in 1883 and graduated from the Williamson School of Mechanical Trades in Delaware County, Pa. After completing his education he was employed by the Westinghouse Electric & Mfg. Co., Pittsburgh; William Tod Co., Youngstown, Ohio, and in 1904 entered the employ of the Wellman - Seaver - Morgan Co. as a draftsman. He held successive positions as checker, chief draftsman of the hydraulic department and engineer in charge of the marine department. In 1918 he was made superintendent of the Akron works of this company. In May, 1924, he was transferred to the Cleveland office as assistant sales manager. Later he was made engineer in charge of the seamless tube mill machinery department and on Jan. 18 last was appointed manager of engineering production.

JOHN B. SHAUB

—

Lawrence E. Buzard has been appointed general sales manager Fate-Root-Heath Co., manufacturer of Plymouth gasoline locomotives, Plymouth, Ohio, succeeding H. R. Sykes, who recently resigned. Mr. Buzard, who was formerly assistant sales manager, has been with the company a number of years, and is thoroughly conversant with industrial haulage problems. He will have direct charge of locomotive sales and 34 district sales representatives.

—

W. T. Clark has been appointed factory manager of J. W. Paxson Co., foundry equipment manufacturer, Philadelphia. He is a well known operating executive, having done efficient work for the General Electric Co., Otis Elevator Co., Fairbanks, Morse & Co. and others, and has a wide acquaintance in the machine tool building and other metal industries.

—

William J. Clucas has joined the sales organization of the Columbia Steel & Shafting Co., Pittsburgh, in the capacity of special representative. Mr. Clucas, for some years past, has been identified with the Lancaster Steel Products Corporation, a subsidiary of General Motors Corporation. He has served as Western sales manager for that company for the past two years, with offices in the General Motors Building. He will assume his new duties on April 1, with headquarters at 1300 West Fort Street, Detroit, and will continue to specialize on the automotive trade in the Michigan district.

—

John V. Calhoun, formerly engineer of furnace consruction with Combustion Engineering Corporation, New York, has taken up his new duties as sales manager with Harold E. Trent, manufacturer of electrical heating and temperature control appliances, 259 North Lawrence Street, Philadelphia.

—

James F. Miller, who has been simultaneously president and general manager of the Miller-Hurst Corporation, Detroit, specialist in production methods and equipment for foundries and factories, and also president and general manager of the Interstate Foundries, Inc., which operates foundry and machine plants at Clearing, Ill., and Cleveland, has resigned from the latter position. When Mr. Miller, in addition to his other duties, took over executive responsibilities of the Interstate foundry, a year and a half ago, the plants were inoperative as a result of the company's having gone through receivership. The plants were revamped and put in condition for economical operation, a sales force and two plant organizations were developed, and the business put on a substantial basis, with both plants working to capacity. After a month's rest Mr. Miller will devote his entire energies to the Miller-Hurst Corporation, of which he was one of the founders.

—

Edwin C. Andrews, president Niagara Radiator & Boiler Co., North Tonawanda, N. Y., has been elected president of the Jacob Dold Packing Co., Buffalo, and chairman of the board.

—

R. H. Shirk, assistant general manager of sales Lancaster Steel Products Corporation, Lancaster, Pa., will become identified with the general sales office of the Union Drawn Steel Co., Beaver Falls, Pa., April 1. Mr. Shirk has been with the Lancaster company since 1910 and for the past six years has been assistant general manager of sales, giving most of his time to alloys, strip steel and steel specialties.

—

Ora G. Smith, formerly sales engineer of the Heltzel Steel Form & Iron Co., Warren, Ohio, has resigned that position to become assistant to the general superintendent Meehan Boiler & Construction Co., Lowellville, Ohio.

—

C. L. Bailey (eldest son of the late C. L. Bailey) has been appointed manager of the Toronto branch of William Jessop & Sons, Ltd., Sheffield, England, succeeding his father in that capacity. Mr. Bailey is at present spending some time in the Sheffield Works with a view to familiarizing himself with the modern aspects of the steel industry. The knowledge which he will gain during his stay in England will be of considerable value to the engineering industry in Canada.

—

Whiteford R. Cole has been elected president Louisville & Nashville Railroad, succeeding Wible L. Mapother, who died recently. For several years Mr. Cole has been president of the Nashville, Chattanooga & St. Louis Railroad. He has served as a director of the Napier Iron Works, the Nashville Railway & Light Co. and other companies in Nashville, of which he is a native. He is 52 years of age.

—

E. O. Shreve, manager of the San Francisco office of the General Electric Co. since 1918, has been named manager of the industrial department of the company, with headquarters at Schenectady, filling the vacancy caused by the recent death of A. R. Bush. Mr. Shreve was born in Mapleton, Iowa, Oct. 31, 1881. After graduating from the Iowa State College in 1904 he became a General Electric Co. student engineer. In 1906 he was sent to San Francisco as supply salesman and was promoted to manager of the office in May, 1918.

—

W. C. Davis was recently elected president and treasurer of Foote Brothers Gear & Machine Co., 213 Curtis Street, Chicago. E. H. Vogt was made secretary and assistant treasurer.

—

Lammot du Pont has been elected president E. I. du Pont de Nemours & Co., Wilmington, Del., to succeed Irenee du Pont, who desired to be released from the duties so that he might devote more time to personal affairs. The retiring president was made vice-chairman of the board of directors and chairman of the finance committee. He retired from the executive committee and the new president was made its chairman. Lammot du Pont is the eighth member of the du Pont family to head the company since the business was founded in 1802, and the third brother to hold the presidency in succession. Pierre S. du Pont, the first of this trio, was at the helm from 1915 to 1919, during the period of the World War. He was succeeded by Irenee, who, as senior vice-president, had been importantly identified with the war period work, as was Lammot,

also a vice-president and member of the executive committee, which directed every step in the vast construction and production work of that time. Lammot du Pont, the son of Lammot du Pont, who was the first to establish the dynamite business in this country on a permanent commercial basis, was born in 1880 Shortly after graduation from the Massachusetts Institute of Technology in 1902 he entered the employ of the du Pont company and has spent his entire business life in its service.

—

W. F. Rockwell, president and general manager Wisconsin Parts Co., Oshkosh, Wis., automobile axles and parts, has been elected also to the presidency of the Equitable Meter & Mfg. Co., Pittsburgh, in which he has held a substantial financial interest for several years. The assumption of new duties will not require a change of residence from Oshkosh.

—

Milton H. Pettit, who retired from executive connections with the J. I. Case Threshing Machine Co., Racine, Wis., several years ago to become one of the vice-presidents of the Simmons Co., Kenosha, Wis., has been elected senior vice-president and general manager of the latter organization and given the active management of the entire business under the president, Zalmon G. Simmons. The Simmons Co. has maintained its executive offices in New York for several years. Other promotions made at the annual meeting of the board include that of William E. Lindblom, general manager of the Kenosha works, to be general works manager, with headquarters in New York, and that of D. C. Travis, superintendent of production, to be general manager at Kenosha.

—

H. H. Coombe has been elected president and treasurer William Powell Co., Cincinnati; James Coombe, vice-president and general manager, and George E. Weitkamp, secretary.

—

J. Bently Cueman, formerly secretary-treasurer Rogers, Brown & Crocker Brothers, Inc., New York, has returned from a trip to Florida, where he has been sojourning for the past two months with Mrs. Cueman.

OBITUARY

VICTOR DE YSASI, associated with Sota & Aznar, 25 Broadway, New York, for the past 20 years as sales representative in the United States for Spanish iron ores, died at Malaga, Spain, on Feb. 19. During his regime hundreds of thousands of tons of foreign ore came to this country. His acquaintance with leading domestic steel and iron companies was wide. Mr. Ysasi retired from active service with the firm on Jan. 15 last. He sailed for Spain via Gibraltar on Jan. 23 and went to Malaga, where he was to enjoy his retirement.

—

THOMAS C. PEARS, for the past 20 years secretary of the Steel Founders' Society of America, died at his home in Pittsburgh on March 18. He was born in Pittsburgh 77 years ago, and was graduated from Princeton University in the class of 1871. In early manhood he was engaged in the manufacture of flint glass, being identified with Bakewell, Pears & Co., of which his grandfather was one of the founders.

—

WILLIAM H. FINLEY, lately retired president of the Chicago & North Western Railway, died suddenly of pneumonia, March 17, at his home in Wheaton, Ill. He was 64 years old, having been born on a farm in Newcastle County, Del., Jan. 22, 1862. After becoming qualified as a civil engineer, he obtained employment as a draftsman with the Edge Moor Iron Co., Wilmington. In 1887 he went with the Chicago, Milwaukee & St. Paul Railway, and in 1892 took a position with the Chicago & North Western. In 1918 Mr. Finley was elected president of the North Western, and he held that position until he resigned, June 23, 1925. He was a member of the American Society of Civil Engineers and was a past president of the Western Society of Engineers.

—

HUGH R. MCGREGOR, mechanical superintendent Brown & Sharpe Mfg. Co., Providence for many years, died at his home on March 18, following a long decline in health which only lately had incapacitated him from his work. Born in Brookville, Nova Scotia, March 29, 1859, his first employment was in connection with the manufacture of rifles at the Providence Tool Co., then filling large orders for the Turkish Government. He became an apprenticed machinist with Brown & Sharpe on June 4, 1877, and before he had finished his period of apprenticeship he had become assistant foreman in connection with the building of milling machines. Under his supervision was developed the present line of machine tools and accessories manufactured by Brown & Sharpe, many of them bearing the impress of his own ideas, especially in the line of milling machines. He was one of the oldest employees in point of service, covering a period of 44 years.

—

ALLEN CHAMBERS MCKINNIE, sales manager Stanley Works, New Britain, Conn., died at his home in that city, following a long illness, on March 15. He was born at Fort Scott, Kan., Sept. 16, 1875, entered the employ of the Wyeth Hardware & Mfg. Co., St. Joseph, Mo., as a boy, later was with the Simmons Hardware Co., St. Louis, and in 1897 became associated with the Stanley Works.

—

MORRIS E. PERKINS, superintendent of standards, North East Electric Co., Rochester, N. Y., died suddenly on March 7, following a short siege of pneumonia. Mr. Perkins, who was 41 years old, was born in Boston. His father was a master mariner of the old school. He received his early education in Boston.

—

CLARENCE C. ROBBINS, secretary and general manager of the Cleveland Crane & Engineering Co., Wickliffe, Ohio, died March 23 from injuries received the previous evening, when his automobile was struck by an interurban street car. He was 48 years of age and had been manager of the company since its organization, 22 years ago.

—

JAMES O. BARRETT, president, general manager and one of the founders of the Barrett Machine Tool Co., Meadville, Pa., died at his home there on March 19. Death was due to a heart trouble, which had bothered him during the past few years but did not prevent his attending to business, as he was at his office only the day before he died. He was the originator of the Barrett boring machine. He was born in Lodi, Ohio, in 1876, and went to Meadville in 1883. In association with his brothers Charles and William he founded the Barrett Vise & Tool Co. In 1906 he took over the entire control of the company, the name of which was then changed to Barrett Machine Tool Co., and had since directed the company, in association with his sons.

—

W. WARREN SHILLING, president Sharon Foundry Co., Sharon, Pa., and a prominent figure in the business, civic and social life of the Shenango Valley, died at the Buhl Hospital, Sharon, March 21. He had been in poor health for the past two years. He was born in Wheatland, Pa., Oct. 24, 1856. He was admitted to the bar of Mercer County in 1882 and for a period of about nine years followed that profession. In 1905 he acquired the Sharon Foundry Co., which up to that time had produced ingot molds and gray iron castings, and converted it into a steel foundry. He was active in the affairs of the Steel Founders Society of America. Another business activity was the Sharon Railway Co., of which he was president.

Rail Syndicate Sets Prices

Japan Free Ground for International Sales—Japanese Tariff Reported Passed

NEW YORK, March 22.—According to recent cables received by prominent Japanese export houses, the International Rail Syndicate has been formed on the Continent and a minimum price of £6 per ton ($29.10) f.o.b. mill, has been set for heavy rails and £8 per ton ($38.80) f.o.b. mill, has been established on fish plates. Japan, according to these cables, is to be free territory for international competition, which seems to imply that the syndicate has allocated various world markets to various member mills.

Inquiry from foreign markets is fair but only small lots of material, as a rule, are involved. Cuban buyers, suffering from an adverse sugar market, are seeking low priced material, and German sellers continue quite active in this field. Inquiry from Japan is in most cases confined to small lots, except for occasional calls for bids on tonnages of rails or structural material. A few small lots of sheets are reported under inquiry from Japan, but no business of any size is reported placed as yet. While the current quotation of American mills is about $82 per ton, c.i.f. Japan, $81.50 or better is claimed possible by exporters to the Far East. In the meantime the British price is about $80 per ton, c.i.f. Japan. There is also a disparity between British and American tin plate quotations, the former having quoted as low as $5.20 per base box, c.i.f. Japan, while the latter are fairly firm at about $5.60 per base box.

The new Japanese tariff is expected to become effective April 1. According to advance reports by cable, the schedule marks an advance on many products but is somewhat lower than in its original form when recommended by the tariff committee.

Control of United States Refractories Co. Passes Into New Hands

Announcement has been made of a change in the control of the United States Refractories Co., with plants at Mount Union and Barrett, Pa., as a result of which Thomas N. Kurtz, until its absorption by the General Refractories Co. in 1922, president and general manager Standard Refractories Co., Claysburg, Pa., becomes president and general manager of the United States company. It is possible that this development is the first step in the direction of a merger of several refractories companies, reference to which was made in THE IRON AGE of Feb. 4, last, as Mr. Kurtz was the leading figure in the negotiations then in progress for a combination, which besides the United States Refractories Co., was to have included the Ashland Fire Brick Co., Ashland, Ky.; Crescent Refractories Co., Curwensville, Pa.; Haws Refractories Co., Johnstown, Pa., and the Stowe-Fuller Refractories Co., Cleveland.

Except for the election of Mr. Kurtz as president and general manager and that R. P. M. Davis, former president, becomes chairman of the board of directors, the change in control of the company means no change in the official personnel of the company. Mr. Davis retains a substantial interest in the company, which he with C. V. Hackman organized in 1911. Mr. Hackman continues as vice-president in charge of operations, Victor L. Wallett, secretary-treasurer, and John O. Heitsenrather as general manager of sales. Messrs. Davis, Kurtz, Hartman, Wallett, Heitsenrather, together with Charles A. Fearing, Pittsburgh, P. N. Risser, Bedford, Pa., and William H. Sneath, New York, constitute the board of directors.

The plant of the company at Mount Union is devoted to the production of silica brick and has a daily capacity of 160,000 9-in. equivalents. That at Barrett, Pa., is a clay fire brick plant with a daily capacity of 40,000 9-in. equivalents. The company has a large area of fire clay and coal lands near Barrett, while near Mount Union it owns 10,000 acres of mountain land and a large deposit of ganister rock on Jack's Mountain, while Kistler township, also near Mount Union, is the property of the company. The company is capitalized at $2,000,000.

Production of Electric Power Declines but Still Very Great

January output from public utility power plants, as reported by the United States Geological Survey, shows a decline of nearly 1 per cent from the total for December. In millions of kilowatt-hours the figures are 6116 against 6158. In November the total was 5787. Somewhat less than one-third of the total in both January and December was provided by water-power.

This is the first decline since a moderate one last July, but, with the exception of December, the daily average is the highest ever recorded. It is approximately 10 per cent above the average figure for the year 1925 and more than 10 per cent above that for January, 1925. As the last mentioned figure was, up to that time, the highest ever recorded, it follows that the current figures are on an exceedingly high level.

Employment in Pennsylvania

HARRISBURG, PA., March 23.—Without exception, branch offices of the Pennsylvania Department of Labor and Industry report full employment in the iron and steel trade, in their semi-monthly summaries. The demand is for machinists, machine operators, roll turners, toolmakers, etc. Williamsport says the demand for machinists and experienced machine hands is greater now than at any time during the past two years. Only experienced men are being taken on. Scranton has noticed some improvement, the Erie shops having reopened and called back 400 men who had been idle since the start of the anthracite strike.

Some Big River Shipments of Steel

The Jones & Laughlin Steel Corporation, Pittsburgh, is making up a tow of steel products for movement by river to Memphis and Mississippi River points. This will be the thirty-fifth shipment by this company since it inaugurated shipments by inland waterways to the South and Southwest in the fall of 1921, and like all recent tows, this one will consist of 14 barges containing about 8000 tons of steel.

When water stages permit, the Carnegie Steel Co. will also start a shipment to New Orleans by the river routes. This shipment, amounting to about 10,000 tons, will be towed by the recently completed tow boat, City of Pittsburgh, the most modern and one of the largest tow boats in the inland river service. It will not come back, as it has been sold to the Standard Oil Co. of Louisiana, to replace one recently lost by that company.

Aluminum Production Declined in 1925

WASHINGTON, March 19.—Reflecting a decrease of a little more than 3 per cent when compared with 1924, the value of new aluminum produced in the United States in 1925 has been estimated at $36,430,000 by J. M. Hill, Bureau of Mines.

The entire line of milling machines and attachments formerly manufactured by the Garvin Machine Co., New York, has been acquired by John B. Stevens, Inc., 27 Cleveland Place, New York. The line includes plain, universal, vertical and automatic index millers, vises, arbors, square hex fixtures, single and multiple spindle index centers, collet chucks and other accessories.

The McWane Cast Iron Pipe Co. is erecting an addition to its plant, which will afford 8800 sq. ft. of foundry space. The Nashville Bridge Co. is erecting the steel structure.

Exports Lower; Imports Higher

Largest Pig Iron Influx in Almost Three Years— Exports in Eight Months 15 Per Cent Above Last Year; Imports 49 Per Cent Up

WASHINGTON, March 22.—Exports of iron and steel in February declined to 157,187 gross tons, as against 174,585 tons in January, while imports in February increased to 100,273 tons, compared with 79,067 tons in January. The February total was the highest since that of March, 1923. For the eight months ended with February exports aggregated 1,210,475 tons, showing an increase over exports for the corresponding period one year ago with a total of 1,050,070 tons. Imports during the eight months ended with February of the present year reached a total of 647,092 tons, as against 435,571 tons for the eight months ended with February, 1925.

The decline in February exports was due principally to the curtailed movement of boiler tubes and welded pipe, which decreased to 17,529 tons as against 32,052 tons in January, and to the falling off in tin plate shipments, which in February amounted to 13,735 tons, compared with 21,143 tons in January. Gains were most notable in black steel sheets, which amounted to 16,598 tons in February as against 13,638 tons in January, and in steel rails, which increased to 13,121 tons in February, compared with 9198 tons in January. The two important increases in imports in February were made in pig iron, which amounted to 59,122 tons as against 48,423 tons in January, and scrap, which totaled 12,117 tons in February, compared with only 2961 tons in January.

Of the February exports, Canada, the leading country of foreign shipments, took 56,693 tons, while Japan ranked second with 24,195 tons. Of the February imports the United Kingdom was the leading source of origin, providing 20,186 tons, while Germany was a close second, with 19,172 tons. France was third, supplying 14,152 tons. Holland, Belgium and British India furnished between 9000 and 10,000 tons each.

Boiler tubes and welded pipe made up the largest items of export in February, with a total, including fittings, of 18,433 tons. Of this quantity 8411 tons was casing oil line pipe, Venezuela taking 4855 tons and Mexico, 1138 tons. Exports of black welded pipe in February amounted to 4757 tons, while exports of galvanized welded pipe that month totaled 2432 tons. Black steel sheets were the second largest item of export in February, the total having been 16,598 tons, of which Japan took 10,557 tons and Canada 4494 tons. Tin plate exports in February amounted to 13,735 tons, of which Canada took 3342 tons, Japan 3746 tons and China 1442 tons. Of steel rail exports in February, amounting to 13,121 tons, Cuba took 3891 tons, Mexico 2330 tons and Colombia 1428 tons. Galvanized sheets, at 12,827 tons, formed the only other item exceeding 12,000 tons.

Germany led as the source of pig iron imports in February, supplying 16,869 tons, against only 8395 tons in January. The United Kingdom ranked second, with 15,826 tons, about the same as in the preceding month, while British India fell to third place, providing 9990 tons. Of the 3444 tons of cast iron pipe imported in February, 3234 tons came from France and 204 tons from Belgium.

Belgium supplied 2292 tons of the 4472 tons of steel bars imported in February, while France furnished 992 tons and Sweden 774 tons. Of the 5246 tons of structural shapes imported in February, 2716 tons came from Belgium, 1532 tons from the Netherlands and 737

United States Imports of Iron and Steel Products by Countries During February, 1926

(In Gross Tons)

Austria	114	Canada	4,465
Belgium	9,582	Panama	6,494
Czechoslovakia	47	Mexico	51
Denmark	31	Cuba	3,581
France	14,152	Chile	4
Germany	19,172	British India	9,990
Netherlands	9,400	British Malaya	253
Norway	492	China	1
Sweden	2,189	Java and Madura	1
Switzerland	3	Japan, including Chosen	5
United Kingdom	20,186		
Total, Europe	75,368	Grand total	100,273

Imports of Iron and Steel in Gross Tons

	Total Imports	Pig Iron	Ferro-alloys	Manganese Ore and Oxide*
Calendar year 1924	556,814	209,109	59,910	255,157
January, 1925	77,105	41,344	7,165	15,498
February	92,353	47,803	10,997	9,666
March	92,115	50,803	5,691	24,330
April	71,233	33,299	7,699	14,941
May	67,789	21,260	8,721	29,139
June	82,853	35,657	4,259	20,720
Fiscal year 1925	749,393	325,199	77,291	186,939
July	64,642	24,881	3,601	28,586
August	68,489	30,707	3,526	34,168
September	68,445	29,917	3,594	22,709
October	80,045	37,709	11,226	23,054
November	79,771	34,712	6,173	33,238
December	98,400	53,333	7,703	36,908
Calendar year 1925	943,240	441,425	80,269	265,688
January, 1926	79,067	48,428	3,055	37,498
February	100,273	59,122	5,194	27,239
Eight months	647,092	318,804	44,072	248,402

*Not included in "total imports." These figures are for manganese contents of the ore.

Exports of Iron and Steel in Gross Tons

	All Iron and Steel	Pig Iron	Semi-Finished Material
*Average, 1912 to 1914	2,406,218	221,582	145,720
*Average, 1915 to 1918	5,295,333	438,462	1,468,020
*Average, 1919 to 1923	3,078,724	123,837	149,218
Calendar year 1924	1,805,073	41,478	114,417
January, 1925	141,777	1,298	5,764
February	102,299	1,413	7,516
March	155,384	2,037	7,951
April	155,375	1,632	6,831
May	150,612	2,316	7,360
June	136,847	2,507	7,804
Fiscal year 1925	1,663,084	29,563	107,988
July	139,861	2,348	10,701
August	188,465	5,944	8,024
September	136,791	3,349	8,186
October	141,817	2,874	8,432
November	171,134	4,272	16,783
December	142,209	2,626	12,282
Calendar year 1925	1,762,571	32,674	108,681
January, 1926	174,585	1,663	4,388
February	157,187	1,478	5,615
Eight months	1,210,475	24,612	74,466

*Calendar years.

Sources of American Imports of Iron Ore

(In Gross Tons)

	February		Eight Months Ended February	
	1926	1925	1926	1925
Chile	81,900	143,400	821,900	849,275
Canada	380	149	5,352	3,357
Cuba	46,700	32,640	345,312	181,688
French Africa	6,000	20,400	84,675	146,889
Spain	4,700	21,925	68,377	80,086
Sweden	.....	6,918	105,744	248,309
Other countries	20,492	1,040	58,920	17,653
Total	160,172	226,472	1,490,280	1,527,257

Exports of Iron and Steel from the United States

(In Gross Tons)

	February		Eight Months Ended February	
	1926	1925	1926	1925
Pig iron	1,478	1,413	24,612	21,071
Ferromanganese	132	838	1,578	2,151
Scrap	6,779	2,659	52,643	32,432
Pig iron, ferroalloys and scrap	*8,389*	*4,910*	*78,833*	*55,654*
Ingots, blooms, billets, sheet bar, skelp	4,099	6,361	63,509	65,570
Wire rods	1,516	1,155	10,957	11,472
Semi-finished steel	*5,615*	*7,516*	*74,466*	*77,042*
Steel bars	11,115	9,189	78,362	58,636
Alloy steel bars	243	155	2,091	1,575
Iron bars	301	287	2,324	2,431
Plates, iron and steel	10,277	6,305	70,001	43,755
Sheets, galvanized	12,827	15,640	100,790	100,040
Sheets, black steel	16,598	3,574	88,158	77,925
Sheets, black iron	2,625	1,044	12,909	7,474
Hoops, bands, strip steel	3,422	3,076	29,237	19,618
Tin plate, terne plate, etc.	13,735	8,051	78,482	90,128
Structural shapes, plain material	9,283	7,129	80,404	69,414
Structural material, fabricated	7,834	5,146	57,613	44,532
Steel rails	13,121	2,453	98,412	117,911
Rail fastenings, switches, frogs, etc.	5,279	1,080	27,965	18,994
Boiler tubes, welded pipe and fittings	18,433	11,963	180,438	117,927
Plain wire	3,966	2,637	23,016	18,181
Barbed wire and woven wire fencing	4,951	4,201	44,335	58,421
Wire cloth and screening	207	88	1,369	884
Wire rope	375	405	2,884	2,942
Wire nails	918	600	7,531	6,747
Other nails and tacks	670	758	6,014	5,550
Horseshoes	106	71	526	567
Bolts, nuts, rivets and washers, except track	1,260	906	10,804	11,453
Rolled and finished steel	*137,546*	*84,758*	*1,003,665*	*875,105*
Cast iron pipe and fittings	1,840	1,798	21,806	18,182
Car wheels and axles	1,318	1,109	12,069	14,243
Iron castings	460	920	7,606	5,628
Steel castings	729	481	2,587	3,205
Forgings	274	173	1,429	1,011
Castings and forgings	*4,621*	*4,481*	*44,897*	*42,269*
All other	1,025	.....	8,614	.....
Total	157,187	101,665	1,210,475	1,050,070

United States Imports of Pig Iron by Countries of Shipment

(In Gross Tons)

	February		January
	1926	1925	1926
British India	9,990	17,628	9,329
Netherlands	6,670	9,944	7,173
Germany	16,869	9,598	8,395
United Kingdom	15,826	7,290	15,833
Canada	593	1,863	540
Belgium	1,230	1,065	930
France	7,691	98	4,663
Other countries	253	317	1,560
Total	59,122	47,803	48,423

Imports of Iron and Steel Into the United States

(In Gross Tons)

	February		Eight Months Ended February	
	1926	1925	1926	1925
Pig iron	59,122	47,803	318,804	184,180
Ferromanganese*	4,934	10,342	41,615	45,126
Ferrosilicon	260	655	2,457	5,795
Scrap	12,177	14,502	64,685	65,801
Pig iron, ferroalloys and scrap	*76,493*	*73,302*	*427,561*	*300,902*
Steel ingots, blooms, billets and slabs	3,184	4,906	14,446	22,931
Iron blooms, slabs, etc.	.....	.....	779	.....
Wire rods	912	780	5,668	3,518
Semi-finished steel	*4,096*	*5,686*	*20,893*	*26,449*
Rails and splice bars	1,038	1,930	16,135	27,772
Structural shapes	5,246	4,008	45,258	33,102
Boiler and other plates	180	22	1,153	761
Sheets and saw plates	346	60	2,622	1,989
Steel bars	4,472	2,863	41,697	5,398
Bar iron	904	815	4,854	3,486
Hoops, bands and cotton ties	957	.....	6,694	.....
Tubular products (wrought)	1,227	(a) 2,824	23,503	(a) 25,467
Nails, tacks, staples	204	12	2,509	275
Tin plate	23	46	281	232
Bolts, nuts, rivets and washers	64	10	119	93
Round iron and steel wire	352	273	2,775	1,725
Barbed wire	525	.....	5,278	.....
Flat wire; strip steel	241	98	1,569	1,107
Steel telegraph and telephone wire	.....	.....	133	
Wire rope and strand	108	193	843	5,228
Other wire	175	.....	744	
Wire cloth and screening	14	.....	246	.....
Rolled and finished steel†	*16,076*	*13,154*	*156,413*	*106,635*
Cast iron pipe	3,444	(b)	40,410	(b)
Castings and forgings	164	231	1,815	1,585
Total	100,273	92,373	647,092	435,571
Manganese ore*	27,239	9,666	248,402	119,596
Iron ore	160,172	226,472	1,490,280	1,527,257
Magnesite	‡10,905	11,293	‡40,894	31,787

*Manganese content only. Shipments of ore from Cuba are stated in gross weight, and totaled 174 tons in February.
†Prior to January, 1926, this includes some cast iron pipe, under the heading "tubular products."
‡Dead burned.
(a) Includes some tonnage of cast iron pipe in earlier months.
(b) Included in tubular products, above.

tons from Germany. Steel ingots imported in February amounting to 3184 tons came from numerous countries. France supplied 1867 tons; Belgium, 808 tons; Sweden, 333 tons; Austria, 105 tons, and the United Kingdom, 42 tons. Of the 1038 tons of steel rails imported in February, the Netherlands supplied 661 tons, Germany 149 tons and Belgium 171 tons. Imports of hoops, bands and cotton ties in February totaled 957 tons, of which 702 tons came from Belgium, 112 tons from Germany and 100 tons from France.

British Industrial Machinery Exports Higher in 1925

WASHINGTON, March 22.—Aggregating £8,819,430, or approximately $43,000,000, the value of imports of industrial machinery into the United Kingdom in 1925 was more than double that of 1913, although the tonnage represented only 88 per cent of the pre-war imports, according to the Industrial Machinery Division, United States Department of Commerce. Exports of industrial machinery from Great Britain in 1925 totaled 431,741 tons, valued at £38,557,003, as compared with 392,271 tons, valued at £35,542,635, in 1924.

Returns for the British industrial machinery imports for 1925 indicate an increase of 14 per cent in value and 21 per cent in tonnage when compared with 1924, when 47,412 tons valued at £7,729,693 were brought into Great Britain. These figures, in turn, represent an increase of 12 per cent in value and 11 per cent in tonnage when compared with 1923, when 42,547 tons possessing a value of £6,824,773 were imported. It is interesting to note that the value of British machinery imports per ton in 1925 was £170 as compared with the 1913 value of £64.

The largest individual item in the British machinery exports was textile machinery, of which 123,107 tons, valued at £12,157,871 were shipped from the country in 1925, as compared with 103,618 tons worth £10,831,355, in 1924. Prime movers, not electrical, occupied second place, with 1925 exports of 55,806 tons, possessing a value of £5,428,437, which indicates an increase of more than a million pounds over the 1924 value of similar exports, £4,724,736.

The marked expansion in activity in the structural steel field on the Pacific Coast is shown by figures compiled by the California Institute of Steel Construction. The amount of structural steel received by fabricators of the Coast in 1924 was 31,658 tons, while the amount in 1925 was 54,082 tons. Similarly, receipts of steel plates were 46,582 tons in 1924 and 71,484 tons in 1925. This shows an excess of receipts in shapes and plates combined of over 47,000 tons last year as compared with the year before, or a 60 per cent increase.

Machinery Markets and News of the Works

BUYING LESS ACTIVE

Machine Tool Sales in Most Districts Show Signs of Slowing Up

Cincinnati District an Exception, Some Builders There Expecting March to Be Best Month of Year So Far

MACHINE tool business so far this month has not shown as great an activity as some in the trade had expected. The Cincinnati district reports fairly good buying, with indications that some of the tool builders there may have the best month of the year so far, but from other sections the report is of a slowing up in sales and inquiries.

To the surprise of the trade, the railroads are doing very little buying. The New York Central has closed for a few machines and the Central of Georgia has placed further orders against a list issued early in the year, but the aggregate of railroad buying is not large. Nor are automobile manufacturers buying as extensively as they did during the fall. The volume from other sources is fairly good, consisting mostly of single tool orders from widely diversified industries.

Machine tool plants are running well and, from the standpoint of orders on hand, the situation is one of the best the industry has had in years.

Duluth reports that more machinery has been bought by iron mining companies since December than during all of last year, and perhaps more than during 1925 and 1924 combined. Large shovels, principally electric, and compressors have featured the purchases. One seller alone has disposed of three large compressors. It is understood that three more are pending, one of them a 3750-ft. machine requiring a 615-hp. motor.

New York

NEW YORK, March 23.

MACHINE tool selling offices report that there is a slightly less active demand for tools. Orders for single tools are in fair volume, but the aggregate of current buying is probably under the rate of January and February. The Central of Georgia has bought a number of tools including a 58-in. x 16-ft. rod miller. The Armstrong Cork Co., Pittsburgh, and Clark Brothers, Olean, N. Y., have each bought a side-head boring mill. Other sales include a 250-lb. steam hammer to the Public Service Production Co., Newark; a spline milling machine and a cutter grinder to the Hall-Scott Motor Co., Berkeley Cal.; jig boring machines to Hill, Clarke & Co., Boston, and R. Hoe & Co., New York; a gear-tooth grinder to the International Motor Co., New Brunswick, N. J.; a vertical drilling machine to the Intertype Corporation, Brooklyn, and a vertical shaper to the Brown-Lipe Gear Co., Syracuse, N. Y.

Bids will soon be asked by the Rapid Addressing Machine Co., 46 West Twenty-third Street, New York, for its proposed plant at Roselle, N. J., one-story, 178 x 320 ft., estimated to cost $175,000 with machinery. The Ballinger Co., 105 North Twelfth Street, Philadelphia, and 100 East Forty-second Street, New York, are architects. T. D. Adams is president.

The Weber-McLaughlin Co., North River and 132nd Street, New York, coal dealer, has acquired property, 250 x 540 ft., at Lafayette Avenue and Edgewater Road, fronting on the Bronx River, as a site for a new coal storage and distributing plant, with conveying, loading and other mechanical equipment. An automobile service, repair and garage building for company motor trucks will be erected. The entire project will cost in excess of $75,000.

The New York Central Railroad Co., W. C. Bower, manager purchases and stores, room 344, 466 Lexington Avenue, New York, is asking bids until March 29 for railroad motors, multiple unit control equipment and auxiliary apparatus, serial contract No. 5-1926; also shapes, bars, plates, etc. serial contract No. 4-1926.

The Eldec Co., Inc., Long Island City, manufacturer of electrical equipment and devices, has leased space in the new multi-story factory at Washington and Sixth Avenues, and will install equipment for a plant.

Louis F. Waillant, 394 Graham Avenue, Brooklyn, architect, has plans for a two-story automobile service, repair and garage building, 50 x 100 ft., to cost about $70,000.

The Binshore Garage Co., Inc., 44 Court Street, Brooklyn, has filed plans for a three-story service, repair and garage building, 100 x 102 ft., at 231-7 East Ninety-fourth Street, to cost $120,000 with equipment. John DeHart, 1039 Fox Street, is architect.

The Shippers' Car Line Corporation, 165 Broadway, New York, recently organized under Delaware laws by officials of the American Car & Foundry Co., same address, will take over and expand the Shippers' Car Line, Inc., a subsidiary of the same parent company, formed in 1918. Plants will be operated at Milton and Carbondale, Pa., the latter to continue under the name of the American Welding Co., lately taken over. The new organization has disposed of a preferred stock issue to total $1,742,500, a portion of the proceeds to be used for expansion and general operations. R. H. Davenport is president.

The New York Wagon Co., Inc., 143 West Fifty-first Street, New York, manufacturer of wagons and parts, has acquired property at 141 West Fifty-first Street, 50 x 100 ft., for a permanent plant.

Oscar Goldschlag, 1482 Broadway, New York, architect and engineer, has plans under way for a two-story automobile service, repair and garage building at Albany, N. Y., to cost $150,000 with equipment.

The Gulbransen Music Roll Corporation, recently organized as a subsidiary of the Gulbransen Co., 3232 West Chicago Avenue, Chicago, manufacturer of player piano mechanisms, has leased a portion of the building at 599-603 Eleventh Avenue, New York, for a new plant.

The Yellow Taxi Corporation, 155 East Forty-fourth Street, New York, has purchased property on East Twenty-third Street and Exterior Avenue, totaling 50,000 sq. ft., for the erection of a multi-story service, repair and garage building to cost about $400,000 with equipment.

The Board of Education, Yonkers, N. Y., plans the installation of manual training equipment in a proposed three-story high school at Broadway and Palisade Avenue to cost $650,000, for which bids will be asked on general contract early in May. G. Howard Chamberlain, 18 South Broadway, Yonkers, is architect.

The Wood Newspaper Machine Corporation, Plainfield, N. J., has awarded a general contract to the Wigton-Abbott Corporation, 552 West Twenty-third Street, New York, for a two-story addition, 40 x 159 ft., to cost $40,000.

Kohn & Co., Newark, N. J., jewelry manufacturer, has leased another floor in the building at 26 Camp Street, providing an additional 3500 sq. ft. of floor space, and will equip for extensions.

The New Jersey Power & Light Co., Dover, N. J., is concluding negotiations for the purchase of the power plant and property of the Califon Electric Light & Power Co., Califon, N. J., and plans extensions and the installation of additional equipment.

The Vixen Tool Co., 879 Mount Prospect Avenue, Newark, manufacturer of special files and rasps, operated by the Heller Brothers Co., same address, is arranging for the early removal of its plant and equipment to Newcomerstown, Ohio, where the Heller company has been maintaining a branch works for the production of a lesser grade of similar tools. A new building will soon be available and the change is expected to allow for a resumption of production early in May. It is proposed to increase the present capacity. Paul E. Heller is president of both companies.

The Bright Star Battery Co., Fifteenth Street, Hoboken, N. J., manufacturer of radio battery and equipment, has leased six floors in building F of the Hoboken Terminal of the Hoboken Land & Improvement Co., totaling about 114,000 sq. ft. of floor space, and will equip for a new plant.

The Western Electric Co., 195 Broadway, New York, manufacturer of telephone equipment, will soon discontinue production at its leased plant at 708-20 Frelinghuysen Avenue, Newark, removing the machinery to its new works on the Kearny meadows, Kearny, N. J., now in course of erection, where considerable additional equipment will be provided.

Simon Rabinowitz, structural steel fabricator, 199 Norfolk Street, Newark, is building an addition to his plant, about 50 x 50 ft. New equipment will be required.

The Venetian Art Metal Lamp Co., Inc., 381 Broome Street, New York, has been incorporated with capital stock of $12,000 to manufacture metal lamps, also cast iron novelties, such as book ends, etc. It is interested in getting in touch with foundries which manufacture metal novelties.

The Bloomfield Pattern Works, 497 Bloomfield Avenue, Bloomfield, N. J., which has been in business since January, 1920, has been incorporated. It contemplates an addition to its present plant and work will probably be started in the late spring.

Healey & Co., Keyport, N. J., who for 50 years have been engaged in custom body building, and the Aeromarine Plane & Motor Co., also of Keyport, which for 12 years has been engaged in the manufacture of aircraft, motors and accessories, have been consolidated as the Healey-Aeromarine Bus Co., Inc. There has been a close working arrangement between the companies for years. The consolidation has brought together the combined resources of both companies in a modern plant.

Philadelphia

PHILADELPHIA, March 22.

CONTRACT has been let by the Certain-Teed Products Corporation, Second Street and Erie Avenue, Philadelphia, manufacturer of roofing and kindred specialties, to the Stoffiet & Tillotson Co., Wesley Building, for two additions to its plant to cost about $200,000. One of the structures will be used for manufacturing and the other for storage and distributing.

The Philadelphia Rapid Transit Co., 820 Dauphin Street, Philadelphia, has plans for a new automatic power substation on Eleventh Street, near Pattison Street, estimated to cost $40,000. Three other similar power substations will be built, sites for which are now being condemned by the City Council for the Board Street subway system.

The John Warren Watson Co., Twenty-fourth and Locust Streets, Philadelphia, manufacturer of automobile shock absorbers, etc., has awarded a general contract to the Wark Co., 1600 Walnut Street, for a new one-story plant, 125 x 785 ft., to cost $300,000 with equipment. The Ballinger Co., 105 South Twelfth Street, is architect and engineer.

John G. Mahon, 4910-12 Fairhill Street, Philadelphia, manufacturer of roofing products, has awarded a general contract to George P. Clayton, 1817 North Twentieth Street, for a one-story addition to cost $17,000.

Work will begin on the Palace of Machinery, Mines, Metallurgy and Transportation for the Sesqui-Centennial International Exposition, City of Philadelphia, estimated to cost $740,000. It will be 880 ft. long. The installation will include a crane runway and turntable.

The H. W. Butterworth & Sons Co., York and Cedar Streets, Philadelphia, manufacturer of textile machinery and parts, has completed plans for a one-story addition to cost about $25,000.

The Reading Co. (Philadelphia & Reading Railroad), Reading Terminal, Philadelphia, will build new classification yards with locomotive repair and shop facilities at Reynolds, near Mahanoy City, Pa., to cost $1,000,000, with equipment.

Fire, March 14, destroyed a portion of the lumber mill and yards of the Thomas E. Coale Lumber Co., Susquehanna Avenue and Sedgley Street, with loss reported at $200,000, including equipment and stock. Plans for rebuilding are under consideration.

Robert McNeil, 2347 Reese Street, Philadelphia, manufacturer of chemicals, has awarded a general contract to the Murphy-Quigley Co., 1524 Sansom Street, for a proposed four-story and basement factory, 60 x 100 ft., to cost about $140,000 with equipment. Clarence E. Wunder, 1529 Locust Street, is architect.

The Edwin J. Schoettle Co., 533 North Eleventh Street, Philadelphia, manufacturer of paper boxes and containers, has asked bids on a general contract for an addition, to cost about $70,000 with machinery. J. Fletcher Street, 1120 Locust Street, is architect.

The Philadelphia Rust-Proof Co., Montgomery Avenue and Howard Street, Philadelphia, is arranging for the installation of additional equipment for chromium plating service. Machinery will also likely be installed for rust-proofing and plating of small iron and steel products, such as nails, tacks, etc.

The Public Service Electric & Gas Co., Public Service Terminal, Newark, N. J., will proceed with the construction of a new power substation and switching plant on a 12-acre site on the Klockner Road, near Trenton, N. J., with first unit, 60 x 260 ft., to be supplemented with other units. It is estimated to cost $1,500,000 with equipment. Work will be in charge of the Public Service Production Co., a subsidiary organization.

Fire, March 14, destroyed a portion of the plant of the Pierce-Roberts Rubber Co., Heath and Brian Avenues, Trenton, N. J., with loss estimated at $75,000 including machinery. Plans for rebuilding are under consideration. The company specializes in the manufacture of automobile rubber goods.

The plant and property of the Metalcraft Corporation, Lancaster, Pa., has been acquired by Henry M. Bruner, Lancaster, attorney representing local interests at a receiver's sale, for $21,800. The plant has heretofore been given over to the production of aluminum screw caps and other metal stampings, including plated metal novelties. It is said that a company will likely be organized to take over the factory and resume manufacture.

The Board of Education, Hazleton, Pa., plans the installation of manual training equipment in its proposed three-story high school on North Wyoming Street, to cost $500,000, for work which bids are being asked on a general contract until April 6. Lawrie, Green & Co., 116 Locust Street, Harrisburg, Pa., are architects.

The United States Cast Iron Pipe & Foundry Co., Scottdale, Pa., has awarded a general contract to the Austin Co., for a one-story forge and blacksmith shop addition, 42 x 55 ft. Headquarters are at 71 Broadway, New York.

A power house will be constructed at the plant of the Gunning Silk Co., Easton, Pa., in connection with a proposed extension to the mill. The entire project will cost in excess of $70,000. The Ballinger Co., Twelfth and Chestnut Streets, Philadelphia, is architect.

The Bearings Co. of America, Lancaster, Pa., has been bought by a group of Philadelphia capitalists who are planning to expand the business. Frank M. Germane, formerly of the Gilliam Mfg. Co. and the Timken Roller Bearing Co., both of Canton, Ohio, has been elected president. His headquarters is in the Bullitt Building, Philadelphia. The personnel of the Bearings Co. of America has not otherwise been changed. Jack L. Straub remains as vice-president in charge of operations.

Buffalo

BUFFALO, March 22.

PRELIMINARY plans are under consideration by the W. H. Loomis Talc Corporation, Gouverneur, N. Y., for the construction of a hydroelectric power plant on the Oswegatchie River, St. Lawrence County, vicinity of Watertown, to be used for service at its mill. It is reported to cost close to $100,000, with transmission system.

The Kimberly-Clark Co., Neenah, Wis., manufacturer of paper, has awarded a general contract to Wright & Kremers, Main Street and Pine Avenue, Niagara Falls, N. Y., for a two-story addition to its Niagara Falls mill, 100 x 200 ft., to cost $60,000.

C. B. Hedges, Cuba, N. Y., and associates plan the construction of a one-story automobile service, repair and garage building to cost $50,000. It is proposed to purchase a lathe and other tools.

The Otis-Sawyer Foundry & Machine Co., East Ninth Street, Oswego, N. Y., has awarded a general contract to the Peter Raby Construction Co., local, for a one-story machine shop and foundry, 66 x 160 ft., and 30 x 60 ft., respectively, to cost $50,000 with equipment. William Sawyer is head.

James A. Young, McCarthy Building, Syracuse, N. Y., architect, is asking new bids for a one-story and basement

The Crane Market

SLIGHTLY more inquiry is appearing for overhead cranes and the locomotive crane field continues active, particularly in purchases of used equipment. Bids are all in and award is expected in a few days on the 20-ton hand power traveling crane for an electric project of the Sanders Engineering Co., Portland, Me. The 20-ton hand power crane for Schenectady, N. Y., and the 15-ton electric crane for Pittsfield, Mass., for which the General Electric Co. is in the market have not yet been closed. Among recent purchases of locomotive cranes, particularly used equipment, the activity of Canadian companies has been noteworthy and one purchase of an overhead crane by a Canadian concern is reported this week.

In the Chicago district, the Illinois Central railroad is in the market for eleven 20-ton, approximately 87-ft. span, 3-motor electric cranes for Paducah, Ky., shops. The New England district is quiet with a few inquiries for single cranes still pending. While there is a fair volume of business in the Pittsburgh district, buyers are evidently taking their time in closing.

Among recent purchases are:

General Engineering & Management Corporation, 165 Broadway, New York, a 50-ton electric crane for Whippany, N. J., from the Whiting Corporation.

Crocker-Burbank & Co., Fitchburg, Mass., six 1-ton hand power cranes from the Chisholm & Moore Mfg. Co.

McClellan & Junkersfeld, 68 Trinity Place, New York, a 15-ton, 1-motor overhead crane for the Canadian Salt Co., Ltd., Sandwich, Ont., from the Northern Crane Works, Walkerville, Ont.

Carnegie Steel Co., Pittsburgh, two 25-ton locomotive cranes from the Browning Crane Co.

William Ryder & Co., Buffalo, N. Y., a 20-ton used Ohio locomotive crane from Philip T. King, New York.

W. D. Lonergan Construction Co., Chicago, a 10-ton used crawl-tread locomotive crane from an unnamed dealer.

Mathieson Alkali Corporation, Saltville, Va., a 10-ton overhead crane from the Northern Engineering Works.

General Electric Co., Erie, Pa., a 2-ton overhead crane from the Niles Crane Corporation.

Jones & Laughlin Steel Corporation, Pittsburgh, a 20-ton, 100-ft. span crane from the Alliance Machine Co.

addition, 63 x 95 x 97 ft., L-shaped, to the automobile service, repair and garage building of S. J. Silverman to cost $50,000 with equipment.

The Purecold Products Co. of America, Inc., 1440 Broadway, New York, manufacturer of electrically operated refrigerating equipment, is said to be planning the erection of a new plant at Endicott, N. Y., to cost about $75,000 with machinery. T. A. Scott is president.

The Board of Education, Gloversville, N. Y., is considering the installation of manual training equipment in the new three-story addition to be erected to the present high school, estimated to cost $225,000, for which bids will be asked on revised plans early in April. W. B. Van Dresser, 31 West Fulton Street, is architect.

The Federal Portland Cement Co. will erect a $2,000,000 plant on a 30-acre site of lake front land purchased from the Bethlehem Steel Co. Bids for the general construction will be received within the next two weeks. The company is controlled by the Buffalo Slag and the Standard Slag companies. L. A. Beeghy is president of the three companies.

The Board of Education, Niagara Falls, N. Y., is considering the installation of manual training equipment in its proposed new high school to cost $275,000, for which plans are being drawn by Tooker & Marsh, 101 Park Avenue, New York, architects.

The Lower Niagara River Power & Water Supply Co., Buffalo, is said to have preliminary plans for a hydroelectric power development at Niagara Falls, N. Y., to cost more than $15,000,000 with transmission system.

South Atlantic States

BALTIMORE, March 22.

PLANS are being considered by the Bethlehem Steel Corporation, Sparrows Point, Baltimore, for rebuilding the coke conveyor system at its local plant destroyed by fire March 15, with loss estimated at $60,000. W. Frank Roberts is general manager.

Ovens, power equipment, conveying and other machinery will be installed in the new three-story plant, 75 x 100 ft., to be erected by the Hauswalds Baking Co., 2816 Edmondson Avenue, Baltimore, to cost $80,000. John Freund, 1307 St. Paul Street, is architect.

The Wilson-Nash Motor Co., 1109 Cathedral Street, Baltimore, local representative for the Nash automobile, is asking bids on general contract for a one-story service, repair and garage building, 150 x 250 ft., to cost $115,000. Owens & Sisco, Continental Building, are architects.

The Greenville Steel & Foundry Co., Greenville, S. C., has inquiries out for a bulldozer for heading nuts, upsetting rods, etc.

The Board of District Commissioners, Washington, plans the installation of manual training equipment in the proposed three-story Stuart junior high school on D and E Streets, N. E., to cost $470,000, for which superstructure will soon begin. A. L. Harris, District Building, is architect.

The North Carolina Lumber Co., Hallsboro, N. C., has preliminary plans for rebuilding the portion of its shingle mill, destroyed by fire March 10, with loss estimated at $125,000 including equipment.

The Jewel Supply & Equipment Co., 34 Calvert Street, Baltimore, has inquiries out for two gyratory stone crushers, each with daily capacity of about 400 tons.

The Tomlinson Chair Mfg. Co., High Point, N. C., has plans for three new units, with larger structure five stories, to increase the present capacity about 50 per cent, estimated to cost $200,000 with machinery. S. H. Tomlinson is president.

In connection with proposed extensions and improvements in the Mount Royal pumping station, Baltimore, the Water Department, City Hall, Bernard V. Siems, engineer, plans the complete electrification of the plant. The work is estimated to cost $200,000.

The Consolidated Gas, Electric Light & Power Co., Lexington Building, Baltimore, is arranging a preferred stock issue of $2,000,000, a portion of the fund to be used for extensions and improvements in plants and system.

The Standard Stove & Range Co., Rome, Ga., recently formed with a capital of $85,000, will soon begin the construction of a one-story plant on the Alabama Road, to cost about $45,000 with equipment. R. N. Towers is president.

Motors and power equipment, conveying and elevating machinery will be installed in the seven-story addition 50 x 125 ft., to be erected at the plant of the Everett Waddey Printing Co., East Main Street, Richmond, Va., 50 x 125 ft., to cost $160,000. Carneal & Johnson, Electric Building, are the architects.

R. P. Gravely, Martinsville, Va., has inquiries out for a horizontal return tubular boiler, about 200 hp. capacity, with accessories.

J. S. Davis, Danville, Va., R. F. D. No. 5, has inquiries out for a 3-in. centrifugal pump for handling sand.

The Carolina Wood Products Co., Asheville, N. C., has begun work on an addition to increase the output about one-third, estimated to cost $90,000 with machinery. Louis France is superintendent.

The Norfolk & Western Railway Co., Clyde Cocke, purchasing agent, N. & W. Railway Building, Roanoke, Va., is asking bids until March 31, for requirements for steel springs from April 1, to June 30, 1926, contract serial AA-402; also for requirements for wrought steel pipe during the same period, contract serial AA-403; tie-dating nails, totaling 515,350 in all, contract serial AA-404; requirements for wire fencing, contract serial AA-399, and requirements for locomotive steel tires, contract serial AA-400.

R. P. Johnson, Wytheville, Va., machinery dealer, has inquiries out for about 2500 ft. of ⅝-in. diameter plough steel, flexible cable.

The City Council, Shelby, N. C., has preliminary plans for a proposed pumping plant for the municipal waterworks to cost $100,000.

The Potomac Edison Co., Cumberland, Md., has applied for permission to issue preferred stock for $500,000, a portion of the fund to be used for extensions and improvements in power plants and system.

The Westinghouse Electric & Mfg. Co., East Pittsburgh, has acquired about 5 acres at Valdosta, Ga., for a proposed

plant for the manufacture of lighting standards, to be operated as a branch of its George Cutter Co. division, with main plant at South Bend, Ind. A feature will be made of concrete lighting standard production. The plant will cost $85,000 with equipment. Bernard H. Prack, 119 Federal Street, Pittsburgh, is architect and engineer.

The Wilson-Hock Co., City Point, Va., machinery dealer, has inquiries out for a steel tank mounted on steel tower, with capacity of 50,000 gal.

Robert L. Steele, 3d, Rockingham, N. C., is arranging to purchase machinery for a clay mining and washing plant, to be established on kaolin properties recently acquired.

The Carolina Power & Light Co., Raleigh, N. C., recently formed by a merger of the Carolina Power & Light Co., the Yadkin River Power Co., and other electric utilities in this section, is disposing of a bond issue of $18,000,000, a portion of the fund to be used for the construction of two hydroelectric generating plants, transmission lines, etc. B. S. Jerman is president.

The Board of Education, High Point, N. C., plans the installation of manual training equipment in a proposed high school to cost $400,000, for which bids will be asked early in April. Harry Barton, Jefferson Building, Greensboro, N. C., is architect.

New England

BOSTON, March 22.

MACHINE tool buying has set in again, the lull noted a week ago proving but temporary. Sales by local houses the past week, while not quite up to three weeks ago, embraced a wide variety of tools, and included transactions on which inquiries, in at least two instances, were put out more than a year ago. In addition, several large individual tools have changed hands. Sales to Worcester shops were larger than in any other section of New England. One Worcester company bought six milling machines, four automatic screw machines and two hand screw machines; other individual orders were for two shapers, two tool room lathes, and three hand screw machines. In addition several buyers took one or two tools, practically all new. Most of the machinery being sold is for replacements or for increased production, with comparatively little new plant construction calling for equipment. Local used tool houses in general are refusing to take old equipment in part payment for new. There is a scarcity of some types of good used tools making prices somewhat firmer.

The demand for small tools also has improved and there is a fair call for machine parts as well as for crane parts.

The Peck, Stowe & Wilcox Co., Southington, Conn., has awarded contract for a $50,000 machine shop and a $40,000 pattern storage plant.

A course in foundry practice is to be instituted by the State Trade School, Bridgeport, Conn. Purchases of equipment probably will be made within the next two or three months.

Stone & Webster, Inc., Boston, has been retained by the American Sugar Refining Co. to take charge of construction work and the Honolulu Iron Works for special engineering service on process equipment in connection with the revamping of its Brooklyn, N. Y., refinery.

Work has been started on a plant for the Plainville Casting Co., Bank Street, Plainville, Conn. Plans are private.

Contract has been let for the erection of a plant and office for the Davis-Jones Insulated Wire Co., Phillipsdale, R. I. Plans are private.

Bids closed yesterday for a one and two-story, 109 x 196 ft. plant for the Archer Strauss Rubber Co., Herbert Street, Framingham, Mass., for which miscellaneous equipment is required.

Work is about to start on a five-story, 60 x 200 ft. plant on Charles River Parkway and Vassar Street, Cambridge, for the Johnson-Appleby Co., 218 State Street, Boston, for which miscellaneous equipment is needed. Plans are private.

Lockwood, Greene & Co., 24 Federal Street, Boston, engineer, have plans for an addition and crane runway for the Gurney Heater Mfg. Co., 96 Arlington Street, Framingham, Mass.

The Ford Motor Car Co., Detroit, is reported to have purchased a 139 acre tract on Narragansett Bay, Bristol, R. I., from the estate of Charles F. Herreshoff, on which it is proposed to erect a plant for the reconstruction of used cars for foreign trade.

The Housatonic Machine & Tool Co., 19 Staples Street, Bridgeport, Conn., has awarded a general contract to Marsh Brothers, 2167 North Avenue, for a one-story addition, 40 x 51 ft.

The Green Mountain Power Co., Inc., Montpelier, Vt., has awarded contract to the Sanders Engineering Co., Portland, Me., for its proposed power dam and power station at Molly's Falls, Marshfield, Vt., estimated to cost $750,000. D. E. Manson is president.

The New Britain Iron & Construction Works, 189 Hartford Avenue, New Britain, Conn., has been carrying out an expansion program to provide for ornamental iron production, as well as general iron and steel work. K. Hoffman heads the company.

The Cumberland County Power & Light Co., Portland, Me., has tentative plans for a new steam-operated electric power house at West Buxton, Me., to cost $450,000 with transmission system.

Reorganization plans have been completed for the Economic Machinery Co., Worcester, Mass., manufacturer of bottle machinery and parts. Expansion in production facilities will be carried out. Arthur F. Blanchard of the Blanchard Rubber Co., Boston, is president, succeeding Daniel W. Gurnett.

The Bead Chain Mfg. Co., State Street, Bridgeport, Conn., has awarded a general contract to the Aberthaw Construction Co., Boston, for a two-story addition, 60 x 120 ft.

The Brooks-Skinner Co., Quincy, Mass., manufacturer of metal garages, portable buildings, etc., has approved plans for enlargements.

The Norfolk Iron Co., 33 Newport Avenue, Quincy, Mass., will erect a one-story addition to cost $18,000.

Cincinnati

CINCINNATI, March 22.

ORDERS for single machines continue at a moderate rate and most builders report that sales in March will be the largest so far this year. While there have been no large purchases by automobile makers, the Detroit district is still yielding a sizable volume of business. One automobile manufacturer bought five lathes in this market, while the Ford Motor Co. is reported to be figuring on a number of special machines. The New York Central has closed for a lathe, shaper and several radial drills and the Baltimore & Ohio is inquiring for two tool room lathes. It is understood that the Sayles Finishing Co., Providence, R. I., purchased equipment costing $30,000 for delivery to its plant at Asheville, N. C. The Continental Gin Co., Birmingham, recently bought a large number of tools.

The Cincinnati Planer Co. sold a 72-in. Hypro planer and a 30-in. machine in the New York district. The Pullman Car & Mfg. Co. purchased a ⅛-in. x 12-ft. bending roll and a ¼-in. x 5-ft. straightening roll from the Niles-Bement-Pond Co. The latter also booked a 36-in lathe for the Hudson Coal Co., Scranton, Pa., a 250-lb. single frame steam hammer for the Public Service Production Co., Newark, N. J., and a 58-in. rod miller for the Central of Georgia Railway.

A local builder sold two 22-in. extension bed gap lathes for export to South America. The Big Four Railroad bought a shaper locally. The John Steptoe Co. received an order for a 20-in. shaper from Philadelphia. The McClintic-Marshall Co., Chicago, purchased a one-beam punch and a Long & Allstatter combination multiple punch and gate shear. The Motor Improvements Co., Newark, N. J., bought a tapping machine. The Whiting Corporation, Harvey, Ill., is the purchaser of a 62-in. boring mill and a 10 x 16 extension boring mill. A local turret lathe manufacturer has booked a considerable number of single machines from widely scattered sources.

The Cleveland, Cincinnati, Chicago & St. Louis Railroad, Cincinnati, has plans for improvement of its Riverside yards at Cincinnati to cost approximately $3,000,000. A new roundhouse and shops costing $1,000,000 are contemplated, while $2,000,000 will be expended on new trackage and other additions. W. S. Burnett, Cincinnati, is the engineer in charge of operations.

The Schaible Foundry & Brass Works Co., Dane and Knowlton Streets, Cincinnati, has been incorporated for $50,000. It will do a general jobbing business in bronze,

brass and aluminum castings and will manufacture plumbing supplies. The business was formerly conducted by Charles F. Schaible, who is president of the new company. Expansion of the present plant is contemplated.

The Paragon Refining Co., Toledo, Ohio, has purchased the plants and properties of the Petroleum Refining Co., Latonia, Ky., for approximately $500,000.

The Formica Insulation Co., 4614 Spring Grove Avenue, Cincinnati, manufacturer of automobile timing gears, has awarded a general contract to the Ferro Concrete Construction Co., local, for a two-story addition, 80 x 100 ft., in which molded timing gears will be cut, assembled, molded and treated. The new unit will be a virtually separate gear factory and will be equipped with time-saving machinery. D. J. O'Conor is vice-president.

The Steinkoenig Motor Truck Co., 2311 Harrison Avenue, Cincinnati, manufacturer of motor trucks and parts, has awarded a general contract to D. Meinken & Son, 2145 Bernard Street, for a new two-story and basement plant, 90 x 150 ft., to cost about $65,000. Jacob Steinkoenig is president.

The Knoxville Stove Works, Inc., Knoxville, Tenn., has filed plans for a three-story addition, 60 x 60 ft., to cost $21,000.

The D. M. Rose Lumber Co., South Knoxville Street, Knoxville, Tenn., has begun an expansion program to cost about $200,000 with equipment. The work will include a new power house and the complete electrification of present mills, new mill for flooring production, additional warehouses and distributing buildings.

The Casey-Hedges Co., Chattanooga, Tenn., manufacturer of boilers, tanks and kindred plate products, will rebuild the portion of its boiler shop destroyed by fire March 15, with loss reported at $150,000 including equipment.

The Kentucky Utilities Co., Louisville, has concluded negotiations for the purchase of the Paducah Electric Co. and the Paducah Railway Co. Plans are under advisement for extensions in power plants and system and the installation af additional equipment. The purchasing company is disposing of a bond issue of $4,000,000, a portion of the proceeds to be used for property acquisition and expansion.

W. E. Cooper, 325 West Clinch Street, Knoxville, Tenn., plans the construction of a one-story machine shop at Fountain City to cost $18,000.

The C. Zimmerman Sons Co., 269 East Broad Street, Columbus, Ohio, is having plans drawn for a one-story top addition to its automobile service, repair and garage building to cost about $75,000. Additional equipment will be installed. Bassett & Treselt, Central Bank Building, are architects.

The Kentucky-Tennessee Light & Power Co., Bowling Green, Ky., has acquired ice-manufacturing and cold storage plants on local site and at Glasgow, Ky. Plans are under way for extensions and the installation of additional equipment. Henry Fitch is president.

The National Screen & Mfg. Co., Cincinnati, recently purchased a four-story and basement building at 2450 Beekman Street, containing 40,000 sq. ft. of floor space. Some new equipment has been added. Frederick Bosken is president.

An addition to the plant of the Queen City Steel Treating Co., Cincinnati, which will more than double the present floor space, is nearing completion. The company is equipped for treating by all processes both ferrous and non-ferrous products. E. P. Stenger is president and N. M. Salkover, vice-president.

The Unit-Steel Corporation, 707 Mutual Home Building, Dayton, Ohio, has been incorporated with a capital of 40,000 shares of no par value. The company will specialize in unit-steel construction of various kinds and the material it will use has been developed under the direction of the chief engineer of the Air Division of the United States Army, Urban C. Thies, who is located at McCook Field, Dayton.

Detroit

DETROIT, March 22.

PLANS are being considered by the Wabash Railroad Co., Railway Exchange Building, St. Louis, for a one-story car repair works in the Oakwood district, Detroit, to cost $100,000 with equipment. It is expected to begin work in the spring. R. H. Howard is chief engineer.

The Wildman Rubber Co., Bay City, Mich., is arranging a fund of $500,000, of which about $230,000 will be used for the completion of the local mill of the company, now partially erected, including the installation of equipment. Sydney J. Tenant is vice-president.

The Pontiac Pattern & Engineering Co., Sanford Avenue, Pontiac, Mich., has tentative plans for a one-story addition to cost $25,000. It is purposed to begin work in the spring.

The Indiana & Michigan Electric Co., South Bend, Ind., is negotiating for the purchase of the municipal electric light and power plant at Niles, Mich., for $265,000, and plans extensions in this district.

The Stroh Products Co., 909 East Columbia Street, Detroit, will build a one-story ice-manufacturing and refrigerating plant to cost $100,000 with machinery. Louis Lehle, 3810 Broadway, Chicago, is architect. John W. Stroh is secretary.

The Apex Gate Co., Racine, Wis., manufacturer of iron fencing, gates, etc., and wagon bodies, has leased a building at Pentwater, Mich., for the establishment of a new plant. The structure will be remodeled.

The Berkey & Gay Furniture Co., 448 Monroe Avenue, Grand Rapids, Mich., will take bids at once for a six-story addition to cost more than $175,000. Lockwood, Greene & Co., Buhl Building, Detroit, are architects and engineers. E. A. Wallace is president.

The Diamond Crystal Salt Co., 916 South Riverside Avenue, St. Clair, Mich., is considering an expansion and improvement program to cost about $850,000, including new buildings and equipment. Henry Whiting is president.

In connection with rebuilding the plant of its Stout Metal Airplane Division, Dearborn, Mich., recently destroyed by fire, the Ford Motor Co. plans to triple the size of the previous works. A group of one-story buildings will be erected, with hangar for a capacity of 15 airplanes. Work will begin soon. Albert Kahn, Inc., Marquette Building, Detroit, is architect.

The Frost Gear & Forge Co., Jackson, Mich., is completing a one-story addition, 50 x 108 ft., and will soon place the unit in service.

The American Seating Co., Grand Rapids, Mich., manufacturer of car seats, etc., will soon take bids for three new units, all of multi-story type, estimated to cost more than $2,000,000 with equipment. The company purposes to abandon operations at its Manitowoc, Wis., plant, and will remove this works to Grand Rapids, where production will be concentrated. Smith, Hinchman & Grylls, Marquette Building, are architects. H. M. Taliaferro is vice-president.

Gulf States

BIRMINGHAM, March 22.

CONTRACT has been let by the Continental Gin Co., Birmingham, manufacturer of cotton-ginning machinery, to the H. K. Ferguson Co., for six one-story additions, to cost approximately $200,000 with machinery.

The Highway Construction Co., 1215 Guarantee Title Building, Cleveland, plans the construction of a branch plant at Miami, Fla., for the manufacture of sheet asphalt. The installation will include boilers and power equipment, stone pulverizers, mixing machinery, etc., to develop a capacity of about 10,000 sq. yd. per day.

The City Council, Corpus Christi, Tex., plans the installation of pumping machinery in connection with a proposed municipal water project, using the Nueces River as a source of supply, for which State permission has been secured. The development is estimated to cost $3,500,000.

The Pilsen Sash & Door Co., 2926 West Twenty-sixth Street, Chicago, is said to be planning the stablishment of a branch plant at Tampa, Fla., to cost $50,000 with machinery.

The Texas Power & Light Co., Dallas, Tex., has negotiations under way for the purchase of the municipal electric light and power plant at Nacogdoches, Tex., for $150,000, and plans extensions and improvements in this section, including the installation of additional equipment and transmission lines.

The Duo Sand & Rock Co., Fourth and Poinsettia Streets, West Palm Beach, Fla., has inquiries out for a steam shovel.

The J. B. Leak Mfg. Co., Tarpon Springs, Fla., has begun the construction of a new mill for the manufacture of windows, doors and other millwork, to cost $60,000 with machinery.

The Marland Pipe Line Co., a subsidiary of the Marland Refining Co., Ponca City, Okla., will begin the construction of a pipe line from its properties in the South Hutchinson oil field to Panhandle, Tex., a distance of about 35 miles, to cost approximately $100,000.

The West Florida Co., Tallahassee, Fla., operated by Mees & Mees, Johnston Building, Charlotte, N. C., engineers, has secured permission for a hydroelectric power development on the Ocklocknee River and will prepare plans at an early date. The project is estimated to cost more than $250,000 with power dam and transmission system.

G. C. Wilson, Safety Harbor, Fla., has inquiries out for concrete tile manufacturing machines and auxiliary equipment.

The Florida Ice & Refrigeration Co., Miami, Fla., has filed plans for a two-story ice-manufacturing and refrigerating plant, to cost about $32,000 with equipment. Albert Weber is president.

The Phillips Petroleum Co., Bartlesville, Okla., is said to have preliminary plans under way for a new gasoline refinery in the vicinity of Amarillo, Tex., to cost $750,000 with machinery.

The Dixie Pulp & Paper Co., Union Indemnity Building, New Orleans, recently formed under Delaware laws, is having plans drawn by V. D. Simons, 431 North Michigan Avenue, Chicago, engineer, for its proposed mill at Morgan City, La., for the production of high-grade paper stocks. A power plant will be built. The complete project will cost close to $2,500,000. E. A. McIlhenny is president, and Benjamin C. Brown, secretary.

The United States Cast Iron Pipe & Foundry Co., Bessemer, Ala., has work under way on two additions at its local plant to cost about $75,000. One structure will be equipped as a pattern shop and the other for general storage and distribution. Gordon Jones is manager.

The West Texas Utilities Co., Abilene, Tex., is arranging an expansion and improvement program to cost about $1,000,000 during the year, including extensions in generating facilities and transmission system.

The Ferman Motor Car Co., Inc., 407 Jackson Street, Tampa, Fla., will begin the construction of a four-story service, repair and garage building, 100 x 100 ft., to cost about $150,000, of which about $30,000 will be expended for equipment, tools, etc. Leo M. Elliott, Hall Building, St. Petersburg, Fla., is architect.

The Duval County Board of Education, Jacksonville, Fla., plans the installation of manual training equipment in two new junior high schools, estimated to cost approximately $350,000. Bids are being asked on a general contract until April 13. Mellon C. Greeley, 111 West Adams Street, is architect.

John K. Spaulding, Fullerton, La., machinery and equipment dealer, is in the market for one-story standardized steel buildings, 50 x 240 ft.; 75 x 300 ft.; 100 x 120 ft., and 60 x 80 ft., all about 25 ft. high in clear.

The Lincoln Tank Co., Electra, Tex., is completing the installation of a new plate works for the manufacture of steel tanks, boilers and kindred products and expects to begin production soon. W. P. Lincoln is head.

J. C. Hamilton, city clerk, Port Arthur, Tex., is asking bids until April 8 for two motor-driven pumping units, each with rating of 10,000 gal. per min.; one similar unit with capacity of 3500 gal., and one of 2100 gal. per min. J. O. Herpin is supervising engineer for the city.

Chicago

CHICAGO, March 22.

REPORTS from dealers vary as to the volume of business closed within the week. It is apparent, however, that the past seven days, as a whole, have not measured up to the average of sales late in February and early in March. The trade had expected a more lively interest upon the part of the railroads, and many large manufacturers who began early in the year to make inquiry are not closing as rapidly as had been anticipated. Price advances are few and far between, but current quotations are well established and price cutting has almost wholly disappeared from this market. Used tools remain quiet, and dealers are not showing the interest that they displayed earlier in the year in the auction of large lots. This can be explained to some extent by the fact that a large number of purchases made this year were for replacements and dealers have accepted used tools in trade.

Manufacturers of printing presses are active in making inquiries, and the Western Electric Co. is interested in lathes and production equipment. The Santa Fe is still gathering data on three frog and switch planers for its rail mill at Newton, Kan. The Board of Education, Milwaukee, is inquiring for a 16-in. x 8-ft. motor-driven lathe, complete with controller and a 3-hp. 220-volt 3-phase 60-cycle motor. The International Harvester Co., Chicago, has bought a small drill, and the Pennsylvania Railroad has purchased a heavy drilling machine from Baker Brothers, Inc., Toledo. No purchases are being made against outstanding railroad lists.

S. Karpen & Brothers, 636 West Twenty-second Street, Chicago, furniture manufacturers, will build a six-story and basement addition, 66 x 196 ft. to cost $600,000. Marshall & Fox, 431 North Michigan Avenue, are the architects.

The Peoria Drill & Seeder Co., Peoria, Ill., has decided to discontinue its foundry and use that space for other manufacturing purposes. In the future castings will be purchased from jobbing foundries.

The American Radiator Co., which built a plant in St. Paul two years ago at a cost of $500,000, will add another unit to cost $250,000. It will be ready for occupation in about 90 days.

The Armstrong Auto Parts Co., Springfield, Ill., is considering plans for the rebuilding of the portion of its factory recently destroyed by fire, with loss of $35,000 including equipment.

Gustav Hoffman, 2921 East Seventy-ninth Place, Chicago, has awarded a general contract to Fred M. Heinkel, 7534 Saginaw Avenue, for a one-story and basement plant at 3067 East Ninety-third Street, for the manufacture of dies and kindred specialties, estimated to cost $25,000. Franz Roy, 9046 Commercial Avenue, is architect.

Benjamin F. Price, 1609 Tribune Tower, Chicago, has inquiries out for a boring bar, horizontal floor type.

The Wood Brothers Thresher Co., East Twentieth Street and Washington Avenue, Des Moines, Iowa, will build a one-story assembling plant, 100 x 300 ft., to cost $225,000, for which it is expected to ask bids soon on a general contract. It will also erect a one-story loading, storage and distributing building, to cost about $150,000 with equipment. J. H. Raymaker is company engineer. F. J. Wood is president.

The City Council, Albert Lea, Minn., is considering preliminary plans for a municipal electric light and power house, to cost about $50,000. C. J. Dudley is city clerk.

In connection with an improvement program for the year, the Chicago & North Western Railroad Co., Chicago, plans the construction of coaling plants at different points, with mechanical coal chutes and auxiliary equipment; a number of water-treatment plants will also be installed at various locations.

Fire, March 8, destroyed a portion of the firing and kiln department of the Northwestern Terra Cotta Co., 2525 Clybourn Avenue, Chicago, with loss estimated at $50,000 including equipment. It is planned to rebuild.

The Board of Education, Erie, Colo., is considering the installation of a manual training department in its proposed two-story high school to cost $70,000, for which plans are being prepared by Eugene G. Groves, 1982 Broadway, Denver, Colo.

The Viking Pump Co., 406 State Street, Cedar Rapids, Iowa, is considering plans for a one-story addition, 70 x 130 ft., to cost $20,000 exclusive of equipment.

John P. Lynch, Chicago, has begun the erection of a new factory at the corner of Grand and Homan Streets, one-story, 40 x 80 ft., for the manufacture of paper boxes and containers.

The Standard Oil Co., La Crosse, Wis., is completing plans for a new storage and distributing plant at Austin, Minn., to cost about $50,000 with equipment. It will include a pumping plant. E. A. Nordstrom, La Crosse, is engineer.

Milwaukee

MILWAUKEE, March 22.

JUDGING by the moderate volume of purchases of tool room and floor equipment being made by local shops, the machine-tool business looks favorable. Makers of tools are working down their unfilled orders a little more rapidly, as new business, generally, represents a somewhat smaller volume. Inquiry, however, continues fairly active. Requirements of considerable size are still being put out by the A. O. Smith Corporation, the Nash Motors Co., and several other large companies identified with the automotive industries, while the Globe Steel Tube Co., which purchased $250,000 worth of equipment in 1925, is adding about $300,000 worth this year.

The Malleable Iron Range Co., Beaver Dam, Wis., has placed the general contract with the Hutter Construction Co., 128 Western Avenue, Fond du Lac, Wis., for a two-story brick and concrete addition, 100 x 110 ft., to be used

for production, warehousing and shipping. The work will cost about $60,000.

The Packard Motor Car Co., Milwaukee branch, 3501 Grand Avenue, closed bids March 17 for the construction of a one-story addition, 70 x 200 ft., for a service floor and repair shop addition, requiring a moderate list of equipment. The architects are Brust & Philipp, 405 Broadway, local. N. P. Hansen is branch manager.

The E. B. Tonnsen Co., 113 Harmon Street, Milwaukee, sheet metal products, let the contract to C. A. Kleppe & Son, 1026 First Street, local, for a one-story top addition and a two-story side addition, 88 x 90 ft., to cost $45,000 with additional equipment. E. B. Tonnsen is chief owner and manager.

The Nordberg Mfg. Co., Milwaukee, is engaging in regular production of two new types of machines, a track lifter with a 40-hp. motor mounted on a steel frame car, and an underground shovel designed for loading ore, rock and tunnel debris, replacing hand shoveling in tunnels and mines.

J. J. Bogost, 1089 Sherman Boulevard, Milwaukee, has plans by George Zagel & Brothers, architects, for a two-story brick and steel building, 50 x 150 ft., with basement, to be used as a warehouse and handling plant for waste materials, reclaimed metals, etc. Bids will be taken about April 1.

The Wilkin-Challoner Co., Oshkosh, Wis., manufacturer of machinery for sawmills and wood-working factories, has awarded the general contract to the Fluor Brothers Construction Co., 52 Otter Street, local, for the erection of a new gray iron foundry, 82 x 112 ft., to be equipped with new crane, cupola and other requirements. The investment will total about $60,000.

J. E. Burke, 341 North Park Avenue, Fond du Lac, Wis., will build a one-story addition, 40 x 100 ft., for the manufacture of metal weather strip and other metal building materials and supplies. William J. Friedrich, 312 Fulton Avenue, Oshkosh, Wis., is general contractor.

The Globe Steel Tubes Co., Milwaukee, has closed a contract with the Canadian Pacific Railway for furnishing boiler tube requirements, which necessitates further extension of its productive equipment. Delivery has just been made of eight carloads of boiler tubes to the Government navy yards at Puget Sound, Mare Island, and elsewhere. About 50 per cent of its output, with 850 men working night and day shifts, is going to the automotive industries, according to George O. Ross, secretary and treasurer.

The Pioneer Mfg. Co., 526 Fifty-second Avenue, West Allis, Milwaukee, is contemplating the enlargements of plant and production. The capital stock is being increased from $25,000 to $50,000 to accommodate the growth of the business.

The Common Council, Antigo, Wis., will take bids until April 21 for the complete construction and equipment of a municipal sewage disposal plant estimated to cost $35,000. Plans are by the Jerry Donohue Engineering Co., Sheboygan, Wis. F. K. Quimby is city engineer.

Janesville, Wis., interests are organizing for the manufacture of farm implements and planning to acquire the plant of the former Janesville Machine Co., which was acquired by the Samson Tractor division of General Motors Corporation during the war and later abandoned when the Samson tractor was discontinued. The Janesville company manufactured plows, harrows, disks and general farm equipment. Considerable replacement of tooling will be necessary if the industry resumes production.

Cleveland

CLEVELAND, March 22.

MACHINE tool business in this territory is rather slow, but some local manufacturers report a good volume of scattered sales in other districts. The demand for turret lathes, mostly in single machines, continues very satisfactory. Used turret lathes are also selling well and a local manufacturer reports that its stock of rebuilt used turret lathes is about wiped out. While there is no large lot buying in Detroit, considerable business in single machines is coming from automobile and parts manufacturers in that city. Presses are moving fairly well, but few orders are for more than one or two machines.

The Haughton Elevator & Machine Co., Toledo, Ohio, has purchased a 10 x 60-in. thread milling machine and the Owen Bucket Co., Cleveland, a No. 5 bending roll, both orders going to the Niles Tool Works Co. The International Harvester Co., has purchased a 42-in open side planer for its Fort Wayne plant from the Cleveland Planer Co., which has also received an order from A. P. Schraner, Cleveland, for a 36-in. planer. The Standard Tool Co., Cleveland, has bought a rotary surface grinder. The Timken-Detroit Axle Co., Detroit, bought a thread milling machine. The Owen Bucket Co., Cleveland, bought an 8-ft. plate bending roll.

The Rickersberg Brass Co., Perkins Avenue and East Thirty-seventh Street, Cleveland, has purchased a site on Kelley Avenue and is preparing plans for a brass foundry which will contain 60,000 sq. ft. of floor space and will involve an expenditure of $150,000. The company manufactures plumbers' brass goods. The Christian-Schwarzenberg & Gaede Co. is the architect.

The Concrete & Steel Products Co., a subsidiary of the Concrete Steel Co., New York, has leased the Akron, Ohio, plant of the Wellman-Seaver-Morgan Co., Cleveland, which was recently vacated. It will manufacture steel joists and probably other material used in building work.

The Foster Bolt & Nut Mfg. Co., Cleveland, has just completed an additional factory and will start the erection of another building about July 1 which will considerably increase the capacity of its main plant. In addition, it is building a new plant in Chicago, to take care of its Western trade, which will be placed in operation about May 1.

The Domestic Electric Co., 7223 St. Clair Avenue, Cleveland, is having plans prepared for a two-story, 40 x 100 ft. addition. R. J. Lamb is secretary.

The Toledo Casket Co., Toledo, Ohio, is preparing plans for a three-story and basement factory, 90 x 164 ft. Carl G. Wacke, 424 Huron Street, is secretary and C. C. Cornfeldt, 462 Woodrow Boulevard, architect.

The Westinghouse Electric Products Co., Mansfield, Ohio, is having plans prepared for a one-story extension. E. H. Prack, Martin Building, Pittsburgh, is engineer.

The Arco Co., 6408 Euclid Avenue, Cleveland, is having plans prepared for a four-story and basement paint factory, 80 x 80 ft.

The Owen Bucket Co., Rockefeller Building, Cleveland, has purchased a one-acre site at West Sixty-fifth Street and the New York Central tracks, on which it will shortly begin the erection of a plant for the manufacture of grab buckets.

The Austin Co., Cleveland, has taken a contract for a galvanizing plant for the Witt Cornice Co., Cincinnati, manufacturer of garbage and other receptacles. It will be a one-story, monitor type, 100 x 300 ft.

St. Louis

ST. LOUIS, March 22.

OVENS, electric power equipment, conveying and other machinery will be installed in the two-story baking plant to be erected by A. J. Cripe, St. Joseph, Mo., to cost $120,000.

The Missouri Pacific Railroad Railway Exchange, St. Louis, is in the market for a 42-in. crank planer, 1500-lb. steam hammer, 3-ft. radial drill and a heavy duty shaper.

The Alpine Ice Co., Packard and Lucille Streets, Kansas City, Kan., has plans for a one-story addition, 95 x 118 ft., to cost about $25,000.

The Board of Education, Columbia, Mo., plans the installation of manual training equipment in its proposed two-story senior high school to cost $300,000, for which bids will be asked on a general contract early in May. William B. Ittner, Inc., Board of Education Building, St. Louis is architect.

The Springfield Gas & Electric Co., Springfield, Mo., has plans for extensions and improvements in its steam-operated electric power house, to increase the capacity by 10,000 hp., estimated to cost $100,000 with machinery. The company is operated by the Federal Light & Traction Co., 52 William Street, New York.

The Water Bureau, St. Louis, has preliminary plans for the proposed municipal waterworks on the Missouri River, near Howard's Bend, consisting of power plant, boiler house, pumping station, coal-receiving and distributing plant, etc., to cost $300,000 with equipment. A. Pritchard, City Hall, is water commissioner, in charge.

The Western Electric Co., Hawthorne, Ill., and Bankers' Reserve Building, Omaha, Neb., has plans for a two-story and basement factory branch and distributing plant at Omaha, 66 x 135 ft., to cost $80,000. W. E. Stockham, Sunderland Building, is architect.

The Badger Ice Co., Drumright, Okla., contemplates extensions and improvements in its ice-manufacturing plant, to include the installation of additional equipment.

The Monticello Cotton Mills, Inc., Monticello, Ark., plans the construction of an electric power house in connection

with proposed extensions and improvements in its mills. The entire project will cost about $250,000. Lockwood, Greene & Co., Healey Building, Atlanta, Ga., are architects and engineers.

The Arkansas-Missouri Power Co., Blytheville, Ark., is said to have preliminary plans under way for a new ice-manufacturing plant at Kennett, Mo., to cost close to $50,000 with equipment.

The St. Louis Aluminum Co., 115 North Second Street, St. Louis, has been incorporated with capital stock of $10,000, to manufacture aluminum products.

Pittsburgh

PITTSBURGH, March 22.

THERE is a fairly good demand for machine tools in this district, although orders are not yet up to the January rate and inquiries are not being closed as promptly as earlier in the year. The American Sheet & Tin Plate Co. recently began buying against a small list of tools for its Shenango works, New Castle, Pa. The McClintic-Marshall Co., which is rehabilitating its Chicago district shops, closed for three punches and shears, making a total of 15 placed in the past few weeks. Other machines are still to be bought. The Youngstown Sheet & Tube Co. is buying steadily against its list for its Indiana Harbor works.

Plans are being completed by the Kittanning Plate Glass Co., 509 People's Bank Building, Pittsburgh, for the initial units of its proposed sheet glass plant on the old fair grounds at Kittanning, Pa., comprising four one-story buildings, estimated to cost $1,000,000 with equipment. The H. L. Dixon Co., Rosslyn Street, Carnegie, Pa., is engineer and contractor for a portion of the work. C. A. Tennis is president.

The West Penn Cement Co., Butler, Pa., organized by local interests, has acquired about 2000 acres, including limestone deposits, at West Winfield, Pa., and plans the erection of a new mill.

McKee-Oliver, Inc., Oliver Building, Pittsburgh, steel products, has awarded a general contract to the Austin Co., for a one-story plant, 100 x 200 ft., at 140 East Carson Street, to cost about $35,000.

Thomas N. Kurtz, Hollidaysburg, Pa., at one time president and general manager of the Standard Refractories Co., Claysburg, Pa., later acquired by the General Refractories Co., Philadelphia, has acquired a controlling interest in the United States Refractories Corporation, operating fire-brick and refractory plants at Mount Union, Pa. Plans are under advisement for extensions and the installation of additional equipment. The company is capitalized at $2,000,000. Mr. Kurtz will be president and general manager.

The Rosedale Coal Co., Monongahela Building, Morgantown, W. Va., recently reorganized with increased capital, has plans for expansion at its properties at Maidsville, W. Va., with the installation of electric power and mining machinery. Charles E. Hawker is president.

The Sharples Solvents Corporation, Twenty-third and Westmoreland Streets, Philadelphia, C. Marshall Taylor, general manager, has plans under way for a proposed plant for the manufacture of industrial alcohol at Belle, W. Va., where property recently was secured. It is estimated to cost $100,000 with equipment.

The National Transit Co., Franklin, Pa., is planning to rebuild the portion of its power house at the Eclipse Oil Works property, destroyed by fire March 16, with loss estimated at $27,000 including equipment.

Indiana

INDIANAPOLIS, March 22.

AN appropriation of about $150,000 is being arranged by the Warner Gear Co., Muncie, Ind., for the erection of two additions, for which plans are under way.

The Gates Mfg. Co., 835 North Meridian Avenue, Indianapolis, manufacturer of automobile tops and other motor accessories, has acquired property adjoining its factory for a two-story addition to double the present capacity. The expansion will cost $35,000. Frank E. Gates is president, and Fred O. Lanes, vice-president and general manager.

The Ross Power Equipment Co., Merchants Bank Building, Indianapolis, machinery dealer, has inquiries out for a watertube boiler, 1000 to 1500-hp. capacity, working pressure 160 lb., with or without stoker, latter preferred.

The Gary Heat, Light & Water Co., Gary, Ind., will ask bids on a general contract in about a week for a three-story mechanical shop, equipment, storage and distributing plant, 125 x 125 ft., to cost $200,000 with machinery. The structure will include a service, repair and garage department for company motor trucks and cars. George W. Maher & Son, 157 East Erie Street, Chicago, are architects.

Charles B. Dyer, 234 Massachusetts Avenue, Indianapolis, jewelry manufacturer, has awarded a general contract to the Hall Construction Co., Board of Trade Building, for a new one-story factory, 30 x 150 ft., to cost $25,000. Fermer S. Cannon, 21 Virginia Avenue, is architect.

The Board of School Trustees, Lafayette, Ind., has plans for a new vocational school to cost about $300,000 with equipment. It is expected to ask bids soon on a general contract. Walter Scholer, Painters' & Decorators' Building, is architect.

Work will begin on the first unit of the proposed addition of Thomas L. Green & Co., 202 Miley Avenue, Indianapolis, manufacturers of bakers' machinery and equipment, to be two stories, 60 x 122 ft. Another two-story extension, 82 x 90 ft., for which plans have been drawn, will be erected later. Charles E. Bacon, I. O. O. F. Building, is architect. J. Harry Green is secretary.

Broughton & Phillips, 188 State Street, Hammond, Ind., architects, have plans for a two-story and basement automobile service, repair and garage building, 55 x 130 ft., to cost $250,000.

A manual training department will be installed in the proposed high school to be erected by the Board of School Trustees, Monroeville, Ind., to cost $90,000. Pohlmeyer & Pohlmeyer, Central Building, Fort Wayne, Ind., are architects.

Pacific Coast

SAN FRANCISCO, March 17.

THE Union Ice Co., 354 Pine Street, San Francisco, has tentative plans for extensions and betterments in its plant at Watsonville, Cal., to cost $150,000 with equipment.

The Reo-Mobile Mfg. Co., care of the Chamber of Commerce, Santa Cruz, Cal., recently organized to manufacture children's vehicles, has tentative plans for a local factory. Negotiations are under way with the Chamber of Commerce for a suitable site. The initial factory is reported to cost about $40,000.

The Board of Education, Whittier, Cal., has plans under way for a one-story addition, 60 x 170 ft., to the manual training building at the local high school, estimated to cost $45,000 with equipment. Lloyd Rally, 1019 Wright-Callender Building, Los Angeles, is architect.

The California Fruit Wrapping Mills, Inc., Pomona, Cal., recently formed with a capital of $500,000, plans the construction of a new mill for the manufacture of paper suitable for wrapping citrus fruits. The initial unit is reported to cost $100,000 with machinery. The company is headed by Fritz O. Fernstrom, 584 Eldorado Street, Oakland, Cal.

The American Radiator Co., 40 West Fortieth Street, New York, and Second and Townsend Streets, San Francisco, has acquired property at Fourth and Townsend Streets, last noted city, and plans the erection of a two-story factory branch and distributing plant to cost $180,000. Foundations will be arranged for two additional stories later. R. M. Clark is San Francisco manager.

The Buena Fruit & Cold Storage Co., Buena, Wash., will begin rebuilding its cold storage and refrigerating plant recently destroyed by fire, estimated to cost $50,000 with equipment.

The City Council, Eugene, Ore., has plans under consideration for an extensive municipal hydroelectric power development, comprising three generating stations with gross output of 71,300 hp. The entire project with transmission system is estimated to cost $4,000,000.

The Board of City Trustees, Santa Monica, Cal., has engaged D. D. Smith, 1259 Third Street, architect, to prepare plans for a new pumping plant at the Ocean Front Park. Howard B. Carter is city engineer.

The Los Angeles Board of Education, Los Angeles, will soon take bids for a one-story manual arts building at the Van Nuys high school, 72 x 233 ft., to cost $80,000 with equipment. Otto H. Neher, Insurance Exchange Building, is architect.

The Central Construction Co., Oakland Bank Building, Oakland, Cal., is arranging for the construction of a new rock-crushing plant on East Seminary Avenue, to cost $25,000 with machinery.

Frazier & Co., Stockton, Cal., operating a sheet metal works, have awarded a general contract to H. H. Hen-

ning, 1751 Berkeley Avenue, Oakland, for its one-story addition, to cost about $21,000 with equipment. Ralph P. Morrell, Union Building, is architect.

Braley & Graham, 442 Burnside Street, Portland, plan the construction of a new automobile service, repair and garage building to cost about $160,000 with equipment.

The Wread Products Co. has opened a new factory at Whittier, Cal., for the manufacture of door locks. The machine tool equipment was furnished by the Herberts Machinery & Supply Co., Los Angeles.

Canada

TORONTO, March 22.

MACHINE tool sales the past week exceeded those of any week this year. Both dealers and builders appear satisfied with the volume of business now being done and inquiries which are appearing indicate an active spring demand for many lines. The greater part of current business, however, is still confined to single tools. The machinery market, as a whole, is much more active than it has been for several years. During the past week or two inquiries have been made in this market for machinery and tools for shipment to Australia and other British dominions.

Specifications are available until April 21 at the Department of Trade and Commerce, Ottawa, for the Victorian Government Railways, Melbourne, Australia, for the supply and delivery of eight electric overhead traveling cranes, with all necessary equipment, and one plate bending roll stand and electrical equipment.

Thomas Pearson & Co., 109 Nelson Street, Auckland, New Zealand, are in the market for a machine for the manufacture of crêpe perforated toilet paper rolls, and are asking manufacturers to state how soon the machine can be delivered, as well as to the quantity of 6 oz. rolls per hr. it can turn out.

Bids are being received by M. Forget, Village Clerk, Belle River, Ont., for pumps and other equipment for a waterworks plant.

Bids are being received by W. A. Hanrahan, secretary, Water Commissioners, Windsor, Ont., for 12,000,000 gal. per day, 175-ft. total lift, centrifugal pump, both motor and condensing steam drive.

Stuart & Sinclair, 75 James Street South, Hamilton, Ont., have the general contract for alterations and additions to the pumping station at Gage Avenue, Hamilton, Ont., for the city to cost $70,000. Equipment for the plant will be purchased.

The Canadian Associated Goldfields Mining Co., Larder Lake, Ont., will be in the market soon for electric motors and an air compressor.

The Wallace Mfg. Co., Sussex, N. B., has taken over the plant and business of the Sussex Mfg. Co., combined with the Wallace Machine Works, and will resume operations at once. The company manufactures refrigerators, school furniture, box shooks, threshing machines, mill machinery, etc. H. W. Wallace is president and manager.

The William Hamilton Co., Peterborough, Ont., has been reorganized and new directors appointed. The financial position of the company has also been improved by a new bond issue. While it will continue the manufacture of engines, pumps, hydraulic turbine, machinery, etc., a number of new lines will be added. Officers include P. P. Westbye, president; L. Dunlop Palmer, first vice-president; M. V. Sauer, second vice-president.

The Regal Oil Refinery Co., Tillsonburg, Ont., will start work at once on the erection of an oil refinery to be completed by Aug. 1. This will be the first unit of the plant and two additional units will be built later. The cost of buildings and equipment for the complete plant is estimated at $1,000,000. W. B. Brooks, Toronto, is president of the company.

The Ontario Hydro Electric Commission will start work this spring on a power development plant at Camp Alexander, about a mile and a half above the plant just completed at Cameron Falls on the Nipigon River.

The Thunder Bay Pulp & Paper Co., will start work immediately on a 100-ton pulp and paper mill at Port Arthur, Ont. This is the first unit of a proposed 400 ton mill, other units to be added later.

A. H. Oliver, Orillia, Ont., contemplates the manufacture of motor ice cutting machines.

Western Canada

The Manitoba Sugar Co., Winnipeg, Man., is carrying on negotiations with the intention of establishing a sugar refinery.

The Weiner-Brownell Paper Mills, Ltd., Winnipeg, will start work soon on the erection of a paper mill at St. Boniface, Man. B. W. Parker, 624 Union Bank Building, is engineer.

Foreign

THE Chilean State Railways, Valparaiso, Chile, are asking bids until June 28, for electrical equipment to be used in connection with line electrification.

The Ministry of Public Works, Valparaiso, Chile, plans the installation of traveling cranes, loading and unloading equipment and other handling apparatus in connection with the construction of docks and port works at Antofagasta, for which plans have been approved. The project will cost in excess of $5,000,000. Reserved information at the office of the Bureau of Foreign and Domestic Commerce, Washington, reference No. 199914. The American Consulate, C. F. Deichman, consul general, Valparaiso, also has information regarding the development.

The American Chamber of Commerce in France, 32 Rue Taitbout, Paris, has received an inquiry (I-3270) from a concern at Paris desirous of getting in touch with American manufacturers of cotton-picking machinery; also an inquiry (D-3271) from a concern in the same city, interested in getting in contact with American manufacturers of cotton-seeding machinery, and an inquiry (D-3269) from Dijon, desirous of securing information regarding American steam-cleaning and pressing machinery.

The Bureau of Supply of the Philippine Government, Manila, is asking bids until May 29 for two 10-kva. hydro-electric power units with accessories. Specifications available at the office of the Electrical Equipment Division, Bureau of Foreign and Domestic Commerce, Washington, reference No. EE-1008.

Officials of the General Motors Corporation, Detroit, have formed a subsidiary, the General Motors of France, capitalized at 1,000,000 francs, to manufacture, assemble and distribute automobiles in that country.

The Government of the Republic of Colombia, Bogota, is completing a program of expansion and betterments for the State railways to be carried out over a period of ten years, with gross expenditure estimated at $100,000,000. The project will include new rolling stock, electrification of certain lines, locomotive and car repair shops, power stations and other work.

The Denman & Grier Steel Co., Los Angeles, has been formed to deal in heavy steel bars, shapes, bolts, nuts, rivets, lag screws, high speed tool steel and other steel products. The company is composed of A. C. Denman, Jr., and A. W. Grier, president and secretary respectively of the Southern California Iron & Steel Co.

The Kay Mfg. Co. has moved and amalgamated its two Brooklyn, N. Y., plants. The office and factory are now located at the foot of Warren Street (Nos. 2 to 42), Brooklyn. The company now occupies three inter-communicating buildings on the waterfront, served by three railroad sidings of the New York Dock Railway Co. With the installation of additional modern equipment and the addition of 50 per cent more floor space, production facilities will be much greater than heretofore.

Branch Office Representatives of The Iron Age

Editorial

Chicago, Otis Bldg.....R. A. Fiske
Pittsburgh, Park Building.....G. F. Tegan
Cleveland, 1362 Hanna Building.....F. L. Prentiss
Cincinnati, First National Bank Bldg.....Burnham Finney
Boston, Park Square Bldg.....Gerard Frazar
Washington, Investment Bldg.....L. W. Moffett
San Francisco, 320 Market St.....Charles Downes

Advertising

Chicago, Otis Bldg.....F. S. Wayne
Pittsburgh, Park Bldg.....W. B. Robinson
Cleveland, 1362 Hanna Bldg.....Emerson Findley
Cincinnati, First National Bank Bldg.....D. G. Gardner
Boston, Park Square Bldg.....H. E. Barr
Philadelphia, Widener Bldg.....Charles Lundberg
Buffalo, Ellicott Sq.....B. L. Herman
Detroit, 7338 Woodward Ave.....Peirce Lewis
Hartford, Conn., P. O. Box 81.....D. C. Warren
New Jersey, Hotel Regent, Newark, N. J.....W. C. Sweetser
New York, 239 West Thirty-Ninth St., W. C. Sweetser, C. L. Rice, E. Sinnock
San Francisco, 320 Market St.....W. A. Douglas

Current Metal Prices

On Small Lots, Delivered from Stocks, New York

THESE prices are given for the convenience of small-lot buyers whose requirements do not run into mill-size orders.

Only base prices can be listed in some cases, due to limits of space; other items of a given group are deducible from the base price.

The prices which are quoted below are those at which small lots may be bought, whether from jobbers' or other stocks.

Complete market reports and prices on large shipments from mills will be found elsewhere under "Iron and Steel Markets" and "Non-Ferrous Metals."

Bars, Shapes and Plates

	Per Lb.
Bars:	
Refined iron bars, base price	3.24c.
Swedish charcoal iron bars, base	7.00c. to 7.25c.
Soft steel bars, base price	3.14c. to 3.24c.
Hoops, base price	4.49c.
Bands, base price	3.99c.
Beams and channels, angles and tees, 3 in. x ¼ in. and larger base	3.24c. to 3.34c.
Channels, angles and tees under 3 in. x ¼ in. base	3.14c. to 3.24c.
Steel plates, ¼ in. and heavier	3.24c. to 3.34c.

Merchant Steel

	Per Lb.
Tire, 1½ x ½ in. and larger	3.30c.
(Smooth finish, 1 to 2½ x ¼ in. and larger)	3.65c.
Toe-calk, ½ x ⅜ in. and larger	4.20c.
Cold-rolled strip, soft and quarter hard	6.25c.
Open-hearth spring steel	4.50c. to 7.00c.
Shafting and Screw Stock:	
Rounds and hex	4.00c. to 5.00c.
Square and flats	4.50c. to 5.50c.
Standard tool steel, base price	12.00c.
Extra tool steel	15.00c. to 18.00c.
Special tool steel	20.00c. to 23.00c.
High-speed steel, 18 per cent tungsten	70c.

Sheets

Blue Annealed

	Per Lb.
No. 10	3.89c.
No. 12	3.94c.
No. 14	3.99c.
No. 16	4.09c.

Box Annealed—Black

	Soft Steel C. R. One Pass Per Lb.	Long Terne Sheets Per Lb.
Nos. 18 to 20	4.30c.	5.75c.
Nos. 22 and 24	4.35c.	5.90c.
No. 26	4.40c.	6.05c.
No. 28*	4.50c.	6.35c.
No. 30	4.70c.	6.85c.

Galvanized

	Per Lb.
No. 14	4.75c.
No. 16	4.90c.
Nos. 18 and 20	5.05c.
Nos. 22 and 24	5.20c.
No. 26	5.35c.
No. 28*	5.65c.
No. 30	6.15c.

*No. 28 and lighter, 36 in. wide, 20c. higher per 100 lb.

Welded Pipe

Standard Steel	Black	Galv.	*Wrought Iron*	Black	Galv.
½ in. Butt	46	29	½ in. Butt	4	+19
¾ in. Butt	51	37	¾ in. Butt	11	+ 9
1-3 in. Butt	53	39	1-1½ in. Butt	14	+ 6
2½-6 in. Lap	48	35	2-in. Lap	5	+14
7 & 8 in. Lap	44	17	3-6 in. Lap	11	+ 6
11 & 12 in. Lap	37	12	7-12 in. Lap	3	+16

Bolts and Screws

Machine bolts, cut thread, 40 and 10 per cent off list
Carriage bolts, cut thread, 30 and 10 per cent off list
Coach screws, 40 and 10 per cent off list
Wood screws, flat head iron,
77½, 20, 10, 10 and 10 per cent off list

Steel Wire

Base Price† on No. 9 Gage and Coarser	Per Lb.
Bright, basic	4.25c.
Annealed, soft	4.50c.
Galvanized, annealed	5.15c.
Coppered, basic	5.15c.
Tinned, soft Bessemer	6.15c.

†Regular extras for lighter gage.

Brass Sheet, Rod, Tube and Wire

BASE PRICE

High brass sheet	19⅛c. to 20⅛c.
High brass wire	19⅝c. to 20⅝c.
Brass rods	16⅞c. to 17⅞c.
Brass tube, brazed	27⅛c. to 28⅛c.
Brass tube, seamless	23¾c. to 24¾c.
Copper tube, seamless	24½c. to 25½c.

Copper Sheets

Sheet copper, hot rolled, 22¾c. to 23¾c. per lb. base.

Cold rolled, 14 oz. and heavier, 3c. per lb. advance over hot rolled.

Tin Plates

Bright Tin Grade "AAA" Charcoal 14x20	Bright Tin Grade "A" Charcoal 14x20	Coke—14x20	Prime	Seconds
		80 lb.	$6.15	$5.90
		90 lb.	6.30	6.05
		100 lb.	6.45	6.20
IC	$11.25	IC	6.65	6.40
IX	12.85	IX	7.85	7.60
IXX	14.40	IXX	9.00	8.75
IXXX	15.75	IXXX	10.35	10.10
IXXXX	17.00	IXXXX	11.35	11.10

Terne Plates

14 x 20

IC—3-lb. coating	$7.75 to $8.00
IC—20-lb. coating	10.00 to 11.00
IC—30-lb. coating	12.00 to 13.00
IC—40-lb. coating	13.75 to 14.25
Fire-door stock	10.50

Tin

Straits, pig	66 c. to 66¾c.
Bar	69¼c. to 69¾c.

Copper

Lake ingot	15½c.
Electrolytic	15¼c.
Casting	15 c.

Spelter and Sheet Zinc

Western spelter	8¾c. to 9¼c.
Sheet zinc, No. 9, base, casks	13¼c.; open, 13¾c.

Lead and Solder*

American pig lead	9 c. to 10 c.
Bar lead	11¼c. to 12¼c.
Solder, ½ and ½ guaranteed	41c.
No. 1 solder	40c.
Refined solder	33¾c.

*Prices of solder indicated by private brand vary according to composition.

Babbitt Metal

Best grade, per lb	68c. to 72c.
Commercial grade, per lb	30c. to 35c.

Antimony

Asiatic	23c. to 24c.

Aluminum

No. 1 aluminum (guaranteed over 99 per cent pure), ingots for remelting, per lb	30c. to 30½c.

Old Metals

Values are practically unchanged. Dealers' buying prices are as follows:

	Cents Per Lb.
Copper, heavy crucible	12.00
Copper, heavy wire	11.75
Copper, light bottoms	9.50
Brass, heavy	7.00
Brass, light	6.25
Heavy machine composition	8.75
No. 1 yellow brass turnings	8.25
No. 1 red brass or composition turnings	8.00
Lead, heavy	6.75
Lead, tea	5.25
Zinc	4.25
Cast aluminum	18.00
Sheet aluminum	18.00